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NO. 8

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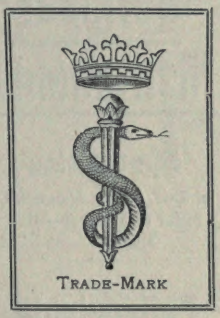

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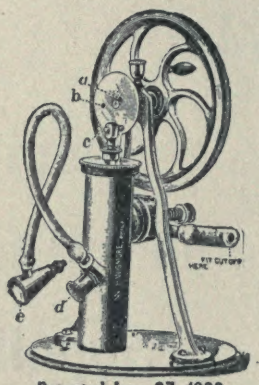

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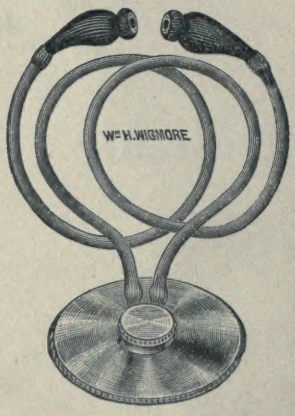

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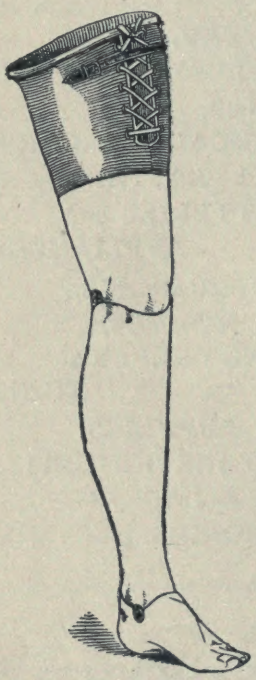

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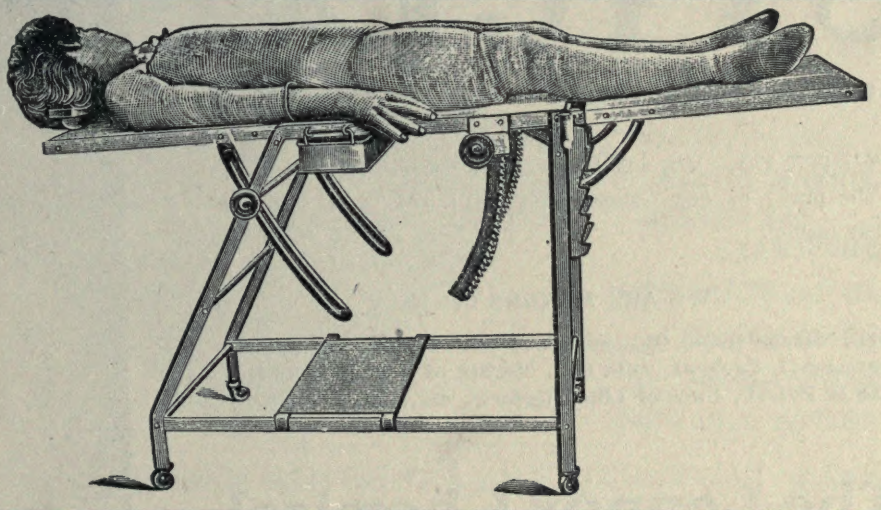

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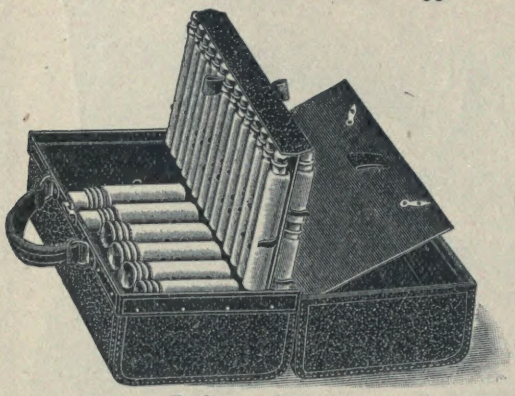

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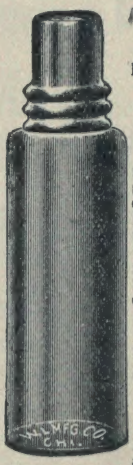

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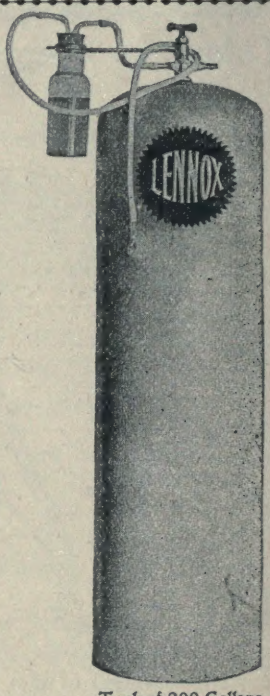

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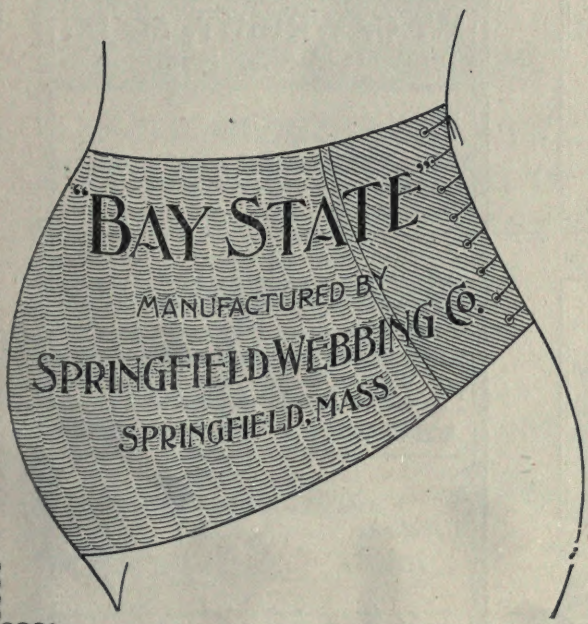

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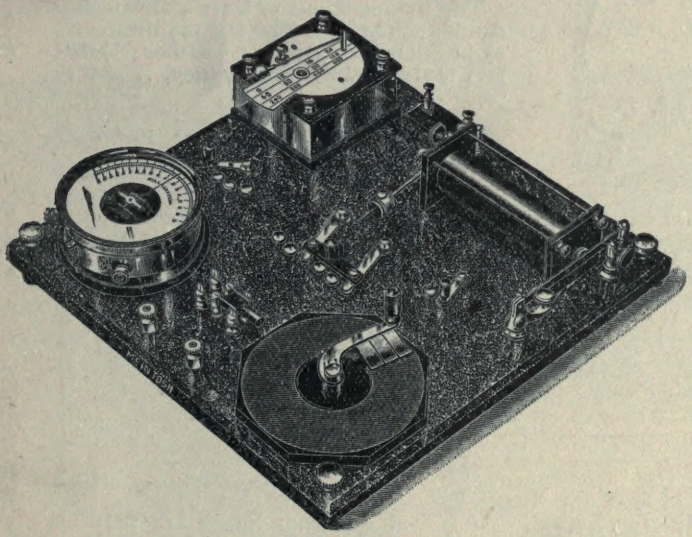

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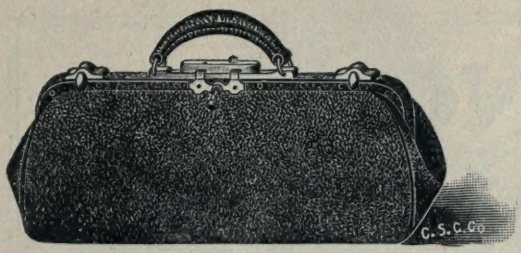

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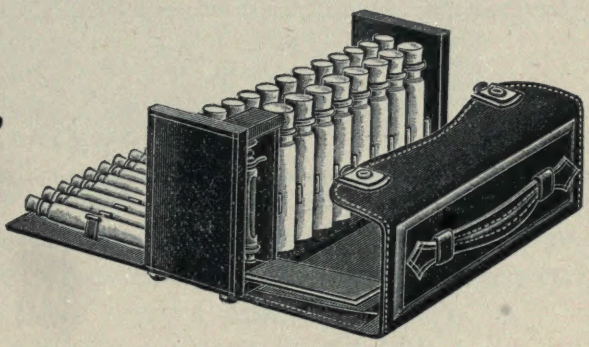

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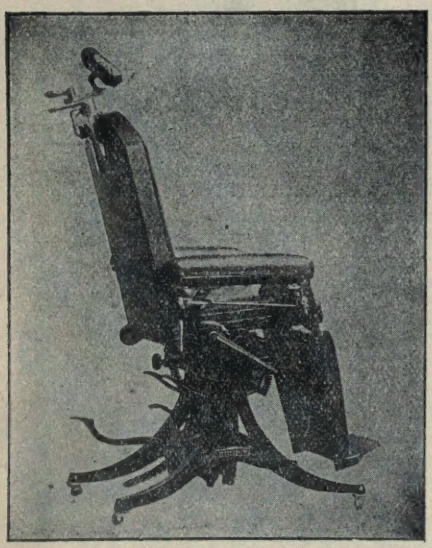

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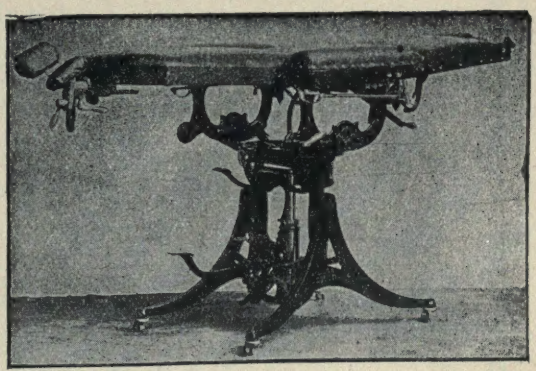

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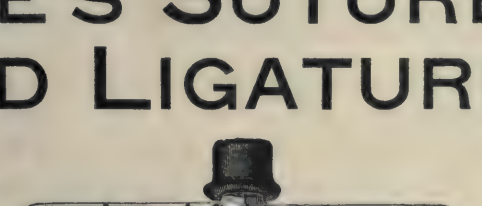

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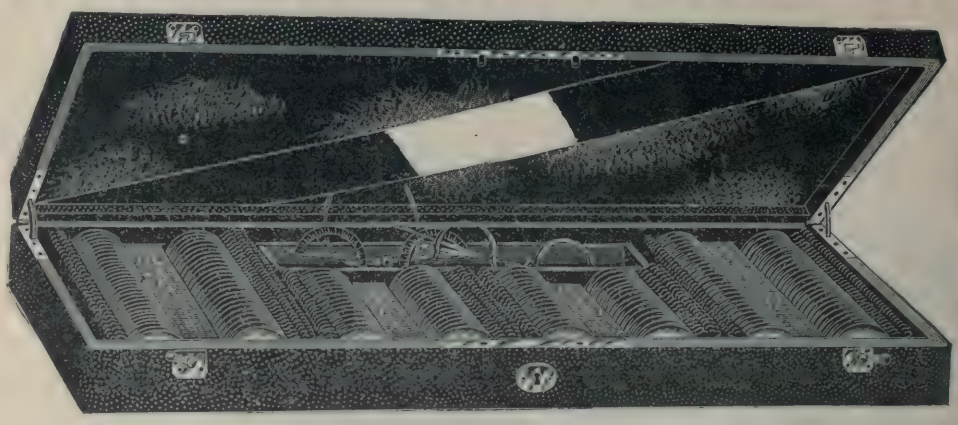

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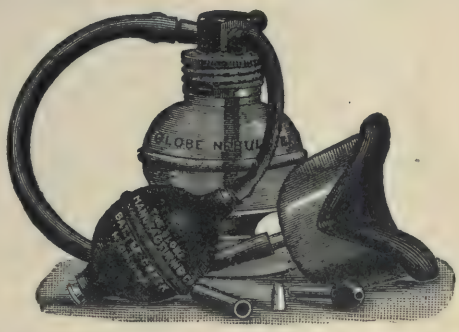

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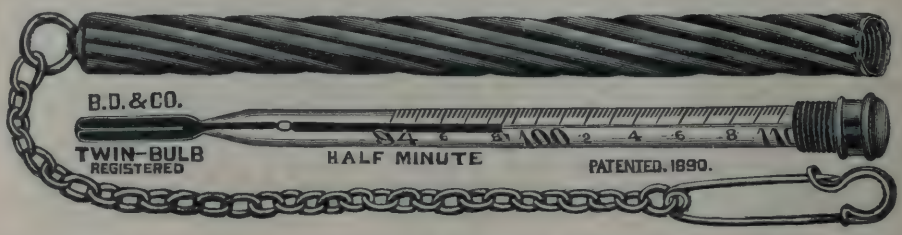

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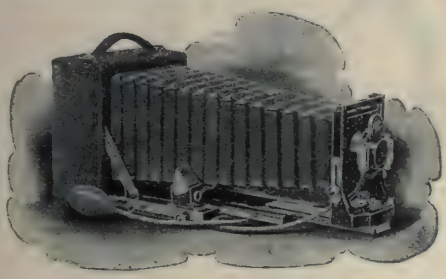

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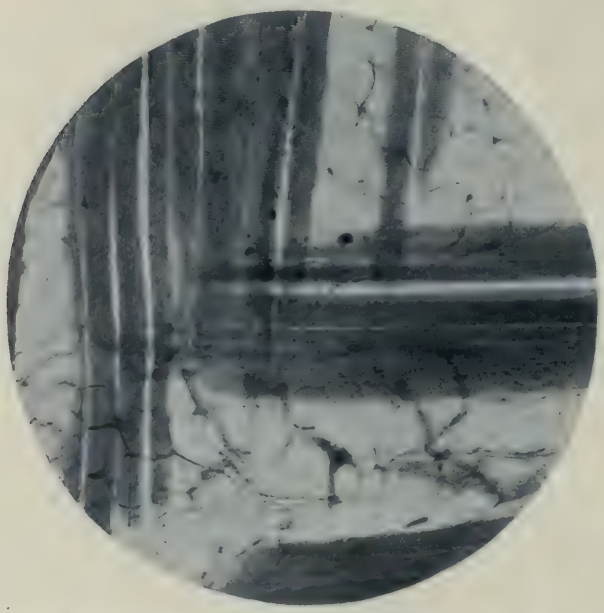
ILLUSTRATIONS IN

MEDICAL PHOTOGRAPHY

FIGURE 1



INTRINSIC MUSCLES OF THE HUMAN TONGUE
X 120

FIGURE 2

DISEASED OVARIES AND UTERINE MUCOUS MEMBRANE

DETROIT
MEDICAL JOURNAL

Original Articles.

PHOTOGRAPHY IN MEDICINE.

BY DOCTOR HENEAGE GIBBES.

The present is an age of illustration and especially is this true as regards contributions upon medical or surgical subjects.

A well-written medical paper (using the term in its generic sense), illustrated with reproductions from photographs showing the macroscopical and microscopical conditions, along with the clinical history of the case or cases worked out in a thorough manner, has an individuality that is of more value to the author than any number of pages which reveal at a glance that they are merely compilations.

This is also an age of book-making, and any one publishing an original paper of the kind just described, provided his record is good, will be requested to allow his contribution and its illustrations to be used by someone who is interested, and is engaged in writing up, that particular subject.

A paper to be of value to the medical profession should consist of:

An accurate and full clinical history of the case or cases on which the paper is based; an account of any published cases bearing on the subject, and illustrating both sides of the question at issue, if there be one.—It is impossible to boycott conclusions adverse to the author, if science and truth are to be served:

When the subject is one that adapts itself to photographic reproductions, nothing aids so much or conclusively as an accurate photograph of the naked-eye appearances; to be sure this is not always possible, owing to the difficulty that often exists in getting a post mortem examination; and it is frequently better to wait for another case where an autopsy can be had, since much more valuable information can be conveyed by a well executed photograph,—e. g. the difference between acute and broncho-pneumonia is well shown in a photograph of a section of the consolidation, taken of the natural size; and, again, in disease of the kidney, if the organ could be divided longitudinally and photographs made of the appearances, as presented in a number of cases, a good deal of metal fog would be cleared up:

The naked-eye appearance should always be supplemented by photographs of the morbid histology taken with the microscope, as this substantiates the diagnosis:

Finally there is the bibliography.—For the average man, to secure this complete, in these days of many writers, is an impossibility; there are, however, a few talented individuals in the world, who have a natural bent for this kind of work, and if the writer of a paper can secure the ser-

vices of such he will be fortunate. In the majority of instances it is better to simply publish the case or cases in good faith, and leave the compiler to utilize them, only seeing that the source of information is acknowledged.—This latter is a difficult matter in itself, for it is astonishing how many men will be dishonest in this respect, especially when far away from the fountain head.

The Camera.—Many consider photography so expensive that its employment, in the manner suggested, is practically inhibited. But this is not necessarily true, since a thoroughly efficient outfit can be had for a comparatively small sum.—I am not speaking of the cheap class of cameras, made only *to sell;* these would only suit one who desires nothing better than cheap work,—if one aimed to become an expert trap shot, he certainly would not purchase a gun that would not make a good pattern when tested, and would shake to pieces in six months; and it is the same with a camera.—One is demanded that can always be depended upon; that will last for years; and one also that can be employed for other purposes than as a mere adjunct to medical investigation,—one that can be used for pleasure, as well as research and enlightenment: Such can be procured without spending a small fortune, and a few lessons from an expert will enable the tyro to use it.

A camera that fully complies with all essentials is made by the Century Camera Company, of Rochester, New York, and is known as the "Century:" It is thoroughly well built and, as the title implies, it is the aim of the manufacturers to make it *the* camera of the century; and no one need fear, if he purchases one of these instruments, that he has made a poor investment. There are a number of sizes and grades and the highest of the latter is the "Century Grand" which leaves nothing to be desired: The price, also, is extremely moderate for such a perfect instrument. The best size for all-around work is five by four inches, as the negatives can easily be enlarged with the same lens and camera, (as I shall show further on) and lantern slides can be made by contact without losing enough to signify of the original negative.

For those who desire to make photographs with the microscope, a camera with very long bellows, and front and back rack and pinion, is required; this can also be used for enlarging and reducing. The best for this class of work is the long-focus "Premo" of the Rochester (N. Y.) Optical and Camera Company; it has the longest extension of any made,—the one I employ is eight and one-half, by six and one-half inches, with a bellows extension of forty-five inches. The price is extremely reasonable, and the instrument is perfect as to stability and workmanship. Plates, not films, must be used in this work.

To prepare a morbid object for reproduction, it must be put in strong alcohol for a time, so that, when it is removed to be photographed, it will dry quickly, obviating any reflection from wet surfaces.

The object (for instance a diseased heart or uterus) must be fastened on a board—the side of a box will do—so that it is at right angles to, and its centre coincident with, the optical axis of the camera and lens. This is a simple matter easily arranged without special apparatus.

If desired to reproduce an object in its natural size, the camera must be racked-out until the distance between the ground-glass focussing screen and the centre of the lens is double the focus of that lens; therefore with a lens of six inches focus the bellows must be a little over twelve inches long; the object must also be placed at the same distance in front of the camera, measured from the centre of the lens, when the result will be a photograph the same size as the original. One cannot, of course, photograph a diseased uterus

(for example), of the natural size, on a plate only five by four inches. To do this there are two courses open: Either to use an eight and one-half by six and one-half camera, or to move the object further from the camera and shorten the bellows until the image on the focussing screen is small enough for the plate, afterward enlarging on bromide paper.

The Lens.—It is often said that the lens is "*everything* in a photograph outfit;" this is only partially true; the whole combination must be good to secure good work. Within the last few years a revolution has taken place in the manufacture of lenses, the discovery of Jena glass having enabled opticians to correct these in a manner they were unable to do formerly. Series of anastigmatic (literally without a point) lenses are now made in which the two combinations (which together form the lens as a whole) are themselves perfectly corrected and that can, also, be used separately. These lenses are of two forms: In one the two combinations have the same focal length; in the other the foci differ.—Consequently one offers a doublet in which the single combination can be used by itself and that has about double the length of focus of the whole lens; in the other is a three focus lens in which (taking a seven inch lens as an example) the whole lens has a focus of seven inches, the back combination a focus of eleven inches, and with the front combination placed at the back, a focus of fourteen inches,—the picture is enlarged by the longer focus, at the same time the exposure is increased. These lenses are made in Germany, in England and in this country, and are all good. They, of course, are very expensive, and many would not care to invest so much money; but I have made a very careful test of a number of these and compared with the lenses furnished with the Century Cameras, and found that, for the work I have been describing, the latter answer every purpose, and are fully equal to the most expensive anastigmat. The Century lenses have a triple focus such as I have already described, and can be employed either in combination, or separately, with excellent results.

The camera must have bellows long enough for the fourteen-inch single combination in the five by four size, as a seven-inch lens is supplied with it; this length is only found in the "Grand" series, but it must not be understood that the cheaper series are not as well made, for they are exactly the same as regards workmanship, and differ only in not possessing so long an extension.—Series F for instance has an extension of twelve and one-half inches, and consequently a lens with a focus of six inches would be required.

In selecting a lens for medical work, what is required is depth of definition,—rapidity cuts no figure. It must be understood that depth of definition is a property that does not belong to any particular form of lens, for on comparing two of different foci it will be found that, the one possessed of the shorter focus gives the greater depth; for instance, in a five by four camera, a seven-inch lens is supplied because it has a longer focus than the diagonal of the plate, and this is done to make sure that the whole plate is covered with the full aperture of the lens. As a matter of fact one of the Century lenses of six-inch focus, will cover the plate and do better work than the seven-inch, in photographing diseased conditions where depth of definition is required.

To get depth, the lens must be stopped down to cut off the marginal rays; this reduces the illumination and lengthens the exposure. Stop No. 32 of the uniform system, or "*f* 22.6," is probably the best, as it gives enough light to judge the exposure and also secures the requisite depth of definition.—I am speaking of condi-

tions where daylight is used as the illuminant.

Enlarging.—It is an easy matter to enlarge to any size required from a five by four negative. First is demanded a small room, preferably with a north aspect, at the top of the house where nothing will come between the sky and the camera. Block out the window with heavy paper, cut out a place for the five by four negative, and arrange something for the camera to stand on. Now, put the camera over the negative and arrange a cloth round it, so that all the light coming into the room must pass through the camera. Fix a board at right angles to the camera and tack on a piece of white card-board; focus the image on the card-board at such a distance as to secure the magnification required; close the shutter and pin up a piece of bromide paper.

Second, expose and develop.

The exposure required varies greatly according to the light and the negative, but it is easy to decide by exposing a small strip of bromide paper and allowing the light to act on it for different periods of time: This is done by dividing the strip into four parts, by pencil marks: Then cover three-fourths of the paper with a card and expose the remaining fourth for five seconds; shift the card and give the second section five seconds; and so on. When finished, the first section will have had an exposure of twenty seconds; the last one of only five seconds; the intermediate ten and fifteen seconds respectively,—this is simply as an illustration, for on a dull day, or with a dense negative, considerably more than twenty seconds may be required. On developing the strip (with a normal developer) note that portion which develops normally will give the correct exposure.

The Paper and Developer.—It is best always to stick to one make of paper until it has been fully mastered, and at the same time to use one developer. In my experience ferrous oxalate is the best all-around developer for bromide paper, either for contact prints or enlargements. With proper exposure one does not get harsh effects, and development can be stopped at any moment by simply pouring off the developing fluid and flooding the paper with dilute acetic acid. There are also many litle dodges by which a negative—that, in the ordinary way would produce a print that would set the teeth on edge,—can be made to yield a soft print with harmonious effect.

I have found an acid fixing-bath to be the best, and as far as I can see it does not affect the permanency of the prints.—How often one discovers that which is theoretically wrong is practically right!

Permanency of bromide prints is only assured by thorough fixing and equally thorough washing.

As to the particular kind or make of bromide paper, there are so many on the market it is difficult to say which is the best. There is a great divergence in price also, and one may pay from fifteen cents to one dollar for a dozen five by four papers. It is my experience, that the most expensive papers are not always the best. As I have already said, take one make of paper and one form of developer, thoroughly master them, and when this is accomplished it will be possible to judge whether one is getting all he ought from his negatives. There is one special point to look for, and that is: *To get a paper in which the image does not sink in and become more or less indistinct in the fine details!* A sharp brilliant image is what is wanted, in which all the minor details are brought out clearly, and fuzzy photography is absolutely useless.

Plates.—The question of the photographic plate best suited for the work I have been describing, is a difficult one. There are a number of different brands on the market especially adapted to this particular purpose; but there cannot be

any doubt as to the superiority of the ortho-chromatic plate, and in photography with a microscope such is almost indispensable.

I have recently found that, in photographing with a microscope, one of the small ray-filters now so much used in land-scape photography, makes a good color screen and costs but little. It can be placed on the eye piece of the microscpe, if that is used, or on the barrel and made to fit by cutting a ring of cork and putting it inside the rim of the filter. Different shades can be obtained, or a ray-filter made, by means of a cell containing colored liquid; such, however, generally leak. The liquid can be varied to suit all conditions; and the best fluid is a solution of potassium bichromate, though some of the eosin group of anilin colors will sometimes give a better effect.

Photography with the Microscope.—No elaborate apparatus is required for this work. A good firm stand and well corrected objectives are, of course, a *"sine qua non;"* but then everyone, who does work of any kind requiring a microscope, will have these. Next comes the camera and, as I have said, the long-focus Premo is pre-eminently suited for this purpose; I employ a five by four with a bellows extension of twenty-six inches, which is easily arranged, and gives perfect results when a picture not larger than this size is required.

The next question is the illumination, and for this an acetylene bicycle-lamp works well. Any one with a moderate amount of mechanical ingenuity can arrange the camera, microscope, and lamp, so that their optical axis is coincident throughout.

A small ray-filter can be fixed on the barrel of the microscope, and with an ortho-cromatic plate in the holder, a good negative can easily be made. There are one or two points on which success depends:

There must be no tremor to effect the apparatus:

The film on the plate must register, absolutely, with the image on the focussing screen:

There must be no reflections from the inside of the camera or barrel of the microscope.—A formula for making a dead black color to remedy this can be found in any of the Photographic Annuals:

The tyro should begin with a low power such as the two-thirds or four-tenths, and without the eye piece:

The necessary exposure must be learned by experience.

There still remains an important point to be considered, namely, the reproduction of photographs by a mechanical process such as is demanded for good, honest work. Many methods have been tried during the last fifteen years, and there has been a gradual evolution, until now a point has been reached where a photograph can be reproduced with absolute fidelity as to outlines, scope, shadows, etc. In my work on Pathology and Morbid Histology, published in 1891, the reproduction of my photographs was done in a manner that I had never seen approached until then; subsequently, however, I have discovered the work of the Peninsular Engraving Company (of Detroit) is away ahead of anything I have ever seen, and probably represents the fastigium of reproduction and illustration at the present day. The illustrations, that accompanies this article, show difficult subjects reproduced in a most perfect manner.

All the photographic reproductions in this Journal have been made by this Company, and evidence that a specimen properly prepared and photographed can be duplicated in every particular with absolute accuracy and fidelity.

I trust that what I have said may prove of value to some members of the profession, and that I have shown that thorough work in every detail, reproduced and put on record, as it now can be, will prove of material benefit to its author.

92 Edmund Place,
Detroit, Mich.

DIGITALIS.*

BY DR. G. ARCHIE STOCKWELL, F. Z. S.

Digitalis is indigenous to the United Kingdom and most parts of Europe, and has also been introduced into America where it is grown more as a floral ornament than for commercial purposes. It is claimed the digitalis that is medicinally the most active grows in Switzerland.*

Digitalis purpurea is the official plant, through some Pharmacopœias take cognizance of other forms, which undoubtedly are employed for adulterative purposes; in fact only the most extreme care and closest examination will ensure a proper product of the crude drug.

The leaves of the official digitalis should be of the second year's growth, when they are most active, and gathered either in July or the latter part of June, before the seeds begin to ripen and when about two-thirds of the flowers have expanded; they also require to be dried in the dark, in baskets, over a moderately heated stove, or in a brick oven, and if this operation is properly performed they will exhibit a dark green hue, with an almost total lack of odor except such as generally obtains to all dried herbs and leaves. The taste is decidedly nauseous and bitter. Much of the uncertainty that accrues to the therapeutic uses of digitalis is doubtless due to improper seasons of plucking, careless drying or packing, or too great age; again the best qualities and those most carefully collected and husbanded, even when pressed and wrapped in stout paper, or kept in tins and jars that are not hermetically sealed, manifest distinct loss of remedial virtues after a few months, they may become practically inert at the expiration of a year.

Much of the so-called digitalis leaves found in the market, as before intimated, are of inferior properties, and adulteration by means of the foliage of the common potato, the black nightshade, or black mullein (*Solanum tuberosum, S. nigrum,* and *Verbascum nigrum*) or perhaps *Coniza squamosa,* is by no means uncommon, all which, in the dry state, possess a remarkable resemblance to purple fox-glove. Such sophistication, it may be remarked, *en passent,* is readily detected by boiling one of the suspected leaves in the smallest possible quantity of water, pouring upon an opalescent plate, and adding a drop of ferric chloride, when if a green reaction occurs the leaf is digitalis; if blue, a substitute.

Preparations and Doses. — Digitalis leaves, powdered, 1-2 to 3 grains.

Digitalis infusion (B. P.), 1 to 4 drachms; (U. S. P.), 2 to 8 drachms.

Digitalis abstract, 1-2 to 1 grain; Squibb's, 2 to 5 grains.

Digitalis extract, solid, 1-6 to 1-2 grain.

Digitalis extract, fluid, 1 to 2 minims,— "specific" tincture and "mother" tincture ditto.

Digitalis tincture (B. P.), 5 to 40 minims; (U. S. P.), 3 to 30 minims.

Digitalis, ethereal tincture, 2 to 8 minims.

Digitalis vinegar, G. P. (digitalis, 1; alcohol, 1; vinegar 9 parts), 10 to 30 minims.

Digitalisin (concentration), 1-16 to 1-4 grain.

Digitalein (Schmiedeberg's), 1-64 to 1-32 grain.

Digitaléine (Nativelle's).—See *Digitonin.*

Digitalin (U. S. P. and B. P.), obsolete.

Digitalin (Homolle's and Quevenne's, French Codex), 1-60 to 1-15 grain.

Digitalin (Schmiedeberg's; or *Digitalin verum,* Kiliani), 1-64 to 1-32 grain.

Digitaline (Nativelle's), 1-250 to 1-60 grain.

Digitonin (Nativelle's digitaléine), no longer employed.

Digitoxin (Schmiedeberg's), 1-250 to 1-125 grain.

Digitalis Abstract.—This is merely a dried solid extract powdered and mixed

**The Chemist and Druggist,* (London.)

with some inert material to prevent subsequent agglutination, and should be made without heat by the substitute process. It presents a green color and the characteristic digitalis odor. Within a short time after making and placing in a container, the powder contracts very much and adheres in a fairly solid mass, that is, however, easily broken up by means of a stiff spatula, and then readily rubbed to powder again. The abstracts in market vary greatly as to strength as this form of galenical is generally, at the present hour, admittedly obsolete, and not granted official recognition.

Digitalis Extract.—This possesses practically the same odor, somewhat intensified, as the abstract, and properly made is of so dark green a hue as to appear nearly black when *en masse;* but when thinly spread the verdant hue is most marked. —A brownish solid extract should excite suspicion and is suggestive of too great heat employed in manufacture, in which case it is almost certain to prove inert.

Digitalis Infusion.—This requires to be made with great caution and from carefully selected leaves of bright color and distinctive odor, and at a very low temperature. That of the U. S. P. is only about one-half the strength prescribed by the B. P., a fact that must be taken in account, according to the residence of prescriber or patient. Note, that fresh leaves in infusion are nearly one-third more active than the dried.

Digitalis Fluid Extract.—A good preparation should represent a definite amount of drug, namely: One gramme of leaves to the cubic centimetre of fluid. Fancy titles mean little, and the "normal liquid," so-called, is nothing more than a fluid extract supposed to contain the regulation amount of the drug, as proved by assay, and a uniform proportion of "total glucosides."

Digitalis Tinctures.—"Concentrated," "specific" and "mother" tinctures should have, practically, the same strength as the fluid extract.—It may here be remarked that these are supposed to be made with pure alcohol, while the fluid extracts, only too often, in the monetary interests of manufactures, contain an excess of glycerin.

The tinctures of the B. P. and U. S. P. vary slightly: The former exhibits a strength of 3 to 24 respectively of bruised leaves and proof-spirit; the latter 3 to 20 of drug and dilute alcohol.

The ethereal tincture is twice the strength of the U. S. P. alcoholic tincture.

Owing to the rapid deterioration of digitalis leaves after curing, the most reliable fluid preparations are those to be obtained from responsible Homœopathic and Eclectic pharmacists, both being in duty bound to employ the fresh leaves of the uncultivated plant in its second season when about to bloom. The Homœopath reduces the leaves to a pulp, encloses in a piece of new linen, subjects to pressure, and mixes the expressed juice by brisk agitation with an equal amount (by weight) of alcohol, the whole being then allowed to stand for eight days, in a well stoppered bottle, in a dark, cool place, after which the product is filtered. The Eclectic macerates eight ounces of fresh leaves in half a pint of alcohol (76%).

Digitalin.—This title, so far as the former signification of a resinoid or concentration is concerned, is now obsolete to all Pharmacopœias and replaced by Digitalisin. At best, this is a very uncertain product as regards strength, and consequently should not be employed when other preparations are available.—Prior to 1890 "digitalin," in medical literature, may be safely considered to represent the concentration.

Digitalis Vinegar.—This still retains a place in some Continental Pharmacopœias, but offers no advantages over other fluid preparations, consequently has been dropped by all Anglo-Saxon authorities.

Digitalis Liniment is merely a mixture of equal quantities of official tincture of

digitalis and "liquid opodeldoc" (Soap liniment).

Ointment and Poultice. — Digitalis ointment may be made of any desired fat and of any required strength, the usual proportions being 1 of solid extract to 9 of base; it should be mixed extemporaneously, as required, since it does not readily keep, especially in warm weather. Digitalis poultice may take the form of a fomentation of the leaves, or be made by using an ounce of the tincture to the requisite amount of linseed meal tempered with hot water.

Active Principles.—The so-called active principles—no alkaloid has yet been discovered,—consist of a number of glucosides viz., Digitalin, Digitalein, Digitonin, Digitin, and Digitoxin. Unfortunately, great confusion exists regarding these preparations, which has been fostered by Pharmacopœial errors: Thus, the Digitalin of Homolle and Quevenne, recognized by French authority, is an amorphous, yellowish white powder, inodorous, intensely bitter to taste, extremely irritating to the Schniderian membrane, and highly poisonous; it is sometimes found as small scales.—Chemically speaking, it is a mixture of the digitalin of the German Pharmacopœia and digitoxin of Schmiedeberg. Another form, one that also has the sanction of the French Codex, is *Digitaline* (mark the final e) *cristallisée,* or the *Digitaléine* of Nativelle, and appears as white, crystalline tufts or needles, and consists almost wholly of Schmiedeberg's digitoxin; it is very bitter to taste, slowly eliminated and consequently "cumulative" in action, and dispensed only when "crystallized" digitalin is ordered. Both the foregoing are insoluble in water and ether, but the crystallized form yields readily to chloroform and rectified spirit.

The Digitalin of the German Pharmacopœia is identical with the *digitalin verum* of Kiliani: It is a white, or yellowish amorphous product, consisting of digitaléin and digitoxin; is soluble in water; in alcohol in the proportion of 1 to 1000; practically insoluble in both chloroform and ether.

Digitalein (Schmiedeberg) is also an amorphous yellowish-white powder of intense bitter taste, soluble in water and alcohol, but slightly so in chloroform and ether; but as before remarked, this is the chief constituent of the German Digitalin.

Digitoxin.—This glucoside of Schmiedeberg is the most poisonous of all the digitalis principles, and likewise markedly "cumulative" in action owing to the difficulty with which it is acted upon by the emunctories. It occurs as a white crystalline powder, soluble in chloroform and alcohol, slightly soluble in ether, insoluble in water. When digitoxin is employed it is recommended that a solution be made in alcohol, chloroform and water, and that it be administered by clyster*:

Digitonin.—This appears to be identical with, or is at least closely related to, saponin, the active principle of quillaia bark. It is found in the form of yellow granules, soluble in water and alcohol, but possesses none of the properties for which digitalis is employed.

Digitin.—This is a coarsely granulated, crystalline powder, soluble in alcohol, ether and alkaline solutions, but is physiologically and therapeutically inert.

Digitaliresin.—This and Digitoxiresin, as well as Digetalacrin, Digitalosmin (a stearopten),* and Digitaloic Acid,** purport to be other derivatives; the first two respectively, of the digitalin and digitoxin of Schmiedeberg. Beyond this nothing of certainty is known.

The Therapeutic Society ought to see that

***Digitoxin 1-96 to 1-64 grain; chloroform 4 minims; alcohol (90%) 1 drachm; water, to make 14 drachms.—For a single dose.**

***Segregated by Walz in 1852.**

****Isolated by Morin in 1845. Fluckiger declares to be malic acid only.**

the French Codex suppresses the amorphous digitalin and admits only the crystallized. The latter is the only one of the digitalis products which represents a really definite principle, and one of constant action and well recognized from a therapeutic standpoint. Digitoxin is not a definite principle, but an indefinite composition, variable in activity.—BARDET (*Les Nouveaux Remedes;* No. 2, 1895).

Though much has been said against the constancy of action of digitalin, the fault lies in improper method of prescribing. The drug has been used with excellent effect and has proved chemically its superiority over other derivatives of digitalis in cardiac asthenia and pulmonary weakness.—MASSIUS (*Bulletin Academie Royal de Medicine* de Belge, vii, 1893; CORIN (*Les Noveaux Remedes;* May 8th, 1895).

The good results obtained from digitalis depend chiefly upon the complex constituents of the drug, and not on the presence of any single derivative.—HARE (Annals of Universal Medical Sciences; vol. 5, 1896).

The employment of the glucosides, one and all, is not to be recommended.—ROTH (Modern Materia Medica; 1895.

Physiological Action.—Though digitalis *per se* has been before the medical profession for more than three centuries, the fact remains that its physiological attributes are by no means thoroughly understood; indeed, they constitute a subject upon which there is great difference of opinion. It may be affirmed that experiments upon mammals, birds, and batrachians have added practically nothing to the knowledge already possessed regarding the action of digitalis when introduced into the economy of man either in health or disease. Part of the trouble may have arisen from the fact that many of the preparations, as found in shops, are practically inert, while the different dosage, and forms of exhibition as employed by different observers, inhibit uniformity: The action on the two-chambered heart of the frog, or three-chambered heart of the bird, both of which animals excrete solid urea, cannot coincide with that on the four-chambered heart and the fluid-excreting gland of the mammal, while, as is well known, there are few drugs toward which individual members of the human family are so generally and widely idiosyncratic. Again, the action of watery and alcoholic preparations are by no means identical, owing to the differences in the solubility of the various glucosides in these *menstrua;* an infusion, for instance, holds in solution chiefly the digitonin, while the tincture contains digitalin and digitalein,—neither contains much digitoxin, but the tincture necessarily carries more than the infusion. Notably the infusion is more directly and promptly diuretic, and the B. P. tincture more so than that of the U. S. P., but the latter two afford the best results when the heart alone is to be acted on. But it is doubtful if the tincture, *solus,* ever acts as a true diuretic, except in the presence of a heart-lesion such as is found in connection with some forms of hydrops. The drug often fails completely in securing the desired action clinically, because the wrong preparation is employed, and it may here be noted that little reliance is to be put on the glucosides, at least not until we are possessed of more definite knowledge regarding their composition and physiological relations. Not only is their use to be deprecated, but they are generally dangerous and sometimes remedially worthless. Digitoxin especially is so highly toxic and so difficult of elimination as properly to bar it from official recognition. How often is seen the statement that digitalis is a powerful sedative, and again that it is a heart-stimulant? This conveys little information, because it is conflicting; yet it may be true, and depends solely upon the dosage, and the peculiarities of the individual patient. In fact, there is no drug in the materia medica that requires more careful handling or more careful study of effects in each and every one for whom it is prescribed; and again there is no drug more certain in securing definite results, when intelligently exhibited.

Regarding action on heart and circulation, it is deemed best to give in abstract the various views:—

The action is that of a stimulant in Doctor Austie's sense of the term: and that renders it especially useful in cardiac weakness whether this condition is accompanied by extremely slow or extremely rapid action:—Wm. Murray (*Medical Times and Gazette;* London, 1896).

Its action as a stimulant may be explained by supposing that in the case of a slow heart it improves the molecular arrangement of the sarcous elements, or that it excites the nerve centres from which the nervous power of the heart is derived; and in the case of the weak but rapid heart it acts by strengthening that regulating or restraining (vital) influence which, while maintaining the activity of the tissues at a normal rate, checks undue and riotous action in the same.—Radcliffe.

In full doses it produces a great rise in arterial pressure, followed by a marked fall. It acts on the inhibitory nerves and on the heart muscles; the increased action being due to vaso-motor spasm and to stimulation of the heart.....When given in frequent small doses, where absorption is immediate it influences all the organic functions as a depressant; it produces.....a marked change in the character, regularity, and frequency of the pulse-beat.—The influence on the heart is not always uniform, but variably and often unreliable.—Ellingwood (Materia Medica, Therapeutics and Pharmacology; 1900, page 247).

Primarily acts upon the heart as a stimulant, increasing the tension and the pulse rate; larger doses, act as a sedative, reduce the pulse, but the tension remains unaffected The diastole is prolonged while the systole is increased in vigor. A lethal dose produces a tetanic contraction of the cardiac muscle, particularly of the left ventricle, the organ being arrested in systole. The effect of the stronger systole and the prolonged diastole is a reduction of the number of pulsations. Not only does a contraction of the heart muscle take place, but a marked contraction of the arterioles also results, so that the blood current is reduced in size and the amount of blood sent through the arteries to the different parts of the system is decreased. A rise of blood pressure then ensues from the resistance of the narrowed arterial calibre and increased systolic action. From the fact, that after the administration of full medicinal doses a change of posture, as from the recumbent to the upright position, occasions a greatly increased number of pulsations and a marked diminution of cardiac force, it has been assumed that no real power is imparted to the heart by digitalis.—This has been explained by others as an occurence only met with when the tonic action is about to verge into that of exhaustion and from over stimulation. ....A lethal dose causes the tetanic contraction above mentioned, obstructing the passage of the blood through the organ, and death takes place from spasm, resulting in syncope.—Felter and Lloyd (King's American Dispensatory: 1900; vol. 1, page 655).

It prolonges diastole and thus rests the heart; but this good is counterbalanced by the high arterial pressure induced, and the consequent straining of cardiac valves.—Chisholm.

Claude Bernard evidences, as the result of experiment with the drug, that it causes at first agitation, and after some hours death, suddenly, as if from syncope. A peculiarity of poisoning is that immediately after death the red arterial blood continues to be poured into the left cavity of the heart, because respiration continues after simple arrest of cardiac pulsation. Death occurs therefore from cessation of heart's action, and at first the organ is dilated by the blood that continues to flow through the cavities. Cardiac rigidity, however, follows much more rapidly in the muscular structures of the heart than in other muscles of the organism. Contraction of the ventricles therefore rapidly replaces the dilation, and in the course of a few minutes the ventricles empty themselves of the blood which has been poured into them.—Time required about fifteen minutes.

Digitaleine acts more powerfully on frogs than on the human heart; the organ itself as the result of poisoning appears flabby.—Vulpian (*Boston Medical and Surgical Journal;* July 21st, 1864; vol. 70; page 501).

In 1864, a Homœopathic practitioner, one La Mommerais, was placed upon trial for poisoning his mistress, Madame de Pauw, to secure 22,000 francs for which her life was assured, the toxic agent employed being claimed to be digitaleine.

The testimony evidenced that the drug produces unconsciousness following abun-

dant cold sweat, and great disturbance of circulation, the pulse being irregular and intermitting; also induces retching at times, but does not necessarily vomit;—The victim complains of the head; whitish froth exudes from the mouth; the vomiting matters are either glairy or bilious. Finally the drug seems to preserve the cadaver in an unusual manner, since the body of Madame de Pauw gave no evidence of decomposition on the thirteenth day after death.

Digitalis does not diminish arterial action unless given in poisonous doses and quantities; but it has the power of lessening irritative frequency of the heart and arteries, which is accomplished by its narcotic, anti-irritant properties. —Tully (Materia Medica and Therapeutics; vol. i; part II).

The action of digitalis is divided into three stages: The first is that of stimulation of the vagi; the second, sudden depression of the vasomotor apparatus of the renal arteries; third, depression of the vagus, exhaustion of the ganglia, weakening of the heart, and the circulation begins to fail.—Cawasjee (Practitioners Vade Mecum; Bombay, 1891).

As an efficient and manageable sedative, digitalis is practically valueless; by sedative is implied direct influence exerted upon the central organ of circulation which has caused the drug to be designated by some as "the opium of the heart." The heart is affected by digitalis in two ways: Either it acts as a depressant or an antispasmodic.—Munk (Guy's Hospital Reports).

Pressure in the pulmonary artery is reduced rather than increased under the action of digitalis at a time when the aortic pressure is enormously augmented. The importance of this is easily seen, as it implies an extraordinary physiological disassociation between the right and left heart.—Bayet (Proceedings of Royal Academy of Medicine of Belgium; fourth series; 1892).

The action upon the heart is a double one in that it creates two opposing forces. By the action on the heart muscles it steadily strives to cause contraction or systole of ventricles; by its action on the vagi it equally steadily struggles to produce diastole or dilatation of these cavities. In medicinal doses neither of these tendencies get the upper hand, for both are equally excited, so that now increased systole occurs, now increased diastole.—Hare (Practical Therapeutics, 1894.)

The action of the drug may be summed up by saying that in moderate doses it stimulates the muscular portion of the heart (probably of its ganglia), increases activity of the inhibitory apparatus, and produces contraction of the arterioles. As a consequence of the first action, the cardiac beats become stronger; as a result of the last, there is narrowing of the blood-paths, and to the passage of the vital fluid an increased resistance which, acting on the already excited inhibitory system, aids in slowing the pulse. Decided therapeutic doses produce great reduction and sometimes dicrotism of the pulse, and increase the size and force of the wave; at the same time the arterial tension is augmented.—H. C. Wood (Principles and Practices of Therapeutics; 1894).

Digitalis lessens the number of cardiac pulsations, prolonging diastole, energizing systole, and finally paralyzing the heart in systole. This is induced by direct stimulation of the cardiac muscle, and possibly of the contained motor ganglia, as well of the peripheral inhibitory fibres of the pneumogastric. Moderate doses cause a rise of arterial pressure, probably by contracting the arterioles through stimulation of the vaso-motor centres of the cord.—Biddle (Materia Medica and Therapeutics; 1895).

In therapeutic doses it slows the beat of the accelerated heart, regulates the beat of the arhythmic heart, and greatly augments systolic powers and the diastolic resistance. These effects are developed equally on the two sides of the heart. In relation to mechanism, the effects produced by the ventricles are not subordinate to a primary action of auricles; the action produced on the heart is not secondary to a primary action on the contractile vessels of the aortic system, as the gradual ascension of aortic pressure does not produce the same effect as the drug; and the abatement of velocity produced by digitalis resembles neither that which is produced by suspension of the activity of the accelerator nerves of the heart, nor those produced by excitation of the heart-moderators. It thus seems that the action of the drug is first manifested on the cardiac muscular fibre.—Francois-Frank (*Le Bulletin Medicale;* July 3d, 1895. *Journal American Medical Association;* July 27th, 1895).

German Sée as confidently declares that the action of digitalis is greater on the right side of the heart.

The principal effects are upon the circulatory apparatus, the action of the drug varying according to the size of the dose. Medicinal doses

cause the pulse to beat stronger, firmer, and slower, the strength of the beat being due to stimulation of the cardiac ganglia and the muscular fibres themselves. Arterial pressure is raised through stimulation of the vaso-motor centre in the medulla, and the ganglia situated in the muscular coats of the blood-vessels, causing a contraction of both the arteries and arterioles. This increase of arterial tension gives firmness to the pulse beat; its slowness is due to lessened frequency in the heart-beat caused by stimulation of both the roots and the ends of the cardiac vagus, and consequent lengthening of the diastolic period. Large doses may cause the pulse to beat faster and still increase cardiac pressure, owing to over-stimulation of the pneumogastric and consequent exhaustion; the inhibition being removed and the heart beating under the influence of the sympathetic nerves, its beats are more frequent. The arterial tension is still high, because the mechanism presiding over the calibre of the arterioles is not so easily overstimulated as the vagus, and contracts still more, which, with the increased action of the heart, tends to increase arterial tension.—Butler (Text Book of Materia Medica, Therapeutics and Pharmacy; 1896).

Digitalis slows the heart, increases inhibition, and stimulates the motor apparatus; paralyzes cardiac ganglia by over-stimulation; raises arterial tension, though slowly, possessing cumulative action.—Culbreth (Manual of Materia Medica and Pharmacy; 1896).

Digitalis slows the beat of the heart; the diastole is prolonged and, while the duration of systole is not altered, its force is greatly increased; so much so that after large doses the heart becomes pale because every drop of blood is squeezed out of it. If a larger dose is given, the intense systolic contraction is not uniform all over the organ. The auricles and ventricles do not beat synchronously; and even one portion—the apex, for example—of the ventricle may remain spasmodically contracted during the diastole of the remainder of the cavity, causing the heart to assume "hour-glass" and other curious shapes. These phenomena are due chiefly to the direct action of the drug on cardiac muscle. Even small doses of digitalis actually increase the amount of the work done by the heart in a given time. Moderate doses induce great rise in the blood-pressure; it is clear the drug contracts arterioles by direct action on their muscular coats. It also stimulates the medullary and spinal vaso-motor centres.—Hale White (Materia Medica and Therapeutics; London, 1896).

The greatest and characteristic action of the drug is that it affects elasticity of cardiac muscles without at first modifying its contractile power, as indicated by increase in the volume of the pulse, although the absolute working power of the heart is neither increased nor decreased; at the same time the quantity of blood driven into the aorta is greater than before, not only at every beat of the pulse, but even in a given unit of time; notwithstanding the number of pulsations be diminished, the result is a better filling of the arteries and an increase in blood-pressure. Accompanying this condition there is slowing of the pulse due to stimulation of the inhibitory mechanism of the heart. Finally, in conjunction with continuous high pressure there is irregularity both in the action of the heart and in the frequency of the pulse. Digitalis does not exert a sedative action on the muscular substance of the heart; and although the organ may be beating more slowly it may also be doing more work.—William Murrell (Manual of Materia Medica and Therapeutics; London, 1897).

Digitalis undoubtedly does affect, directly—i. e., immediately,—the muscular tissue of the heart, including persistent contraction. Inasmuch as this action of the heart is independent of the agency of nervous tissues, it seems presumable that it may affect other muscular tissue in the same way. It does, undoubtedly, cause strong contraction of the blood-vessels when these are quite cut off from the central nervous control; hence it must act either directly on the muscular tissue of the walls of blood-vessels or on some peripheral nervous apparatus that governs the muscular tissue of the blood-vessels. In therapeutic use it may be concieved that digitalis will act in different ways: By strengthening the action of a weak heart; by reducing the strength of the beats of a heart acting too powerfully; by lessening the frequency of the heart's beats; by correcting irregular action of the organ; by increasing tonicity and so lessening the size of the cavities, thereby obviating the condition of over-distension in which the stretched ventricles are unable to contract upon the contents, a condition threatening complete asystole—in the second of these propositions a different and fuller dosage will probably be required.—Ringer and Sainsbury (Hand-book of Therapeutics; London, 1897).

The muscular action of digitalis extends to the auricle as well as to the ventricle, although in the former it is often concealed, owing to the inhibitory mechanism having more influence on that division of the heart and there opposes it

more directly than in the ventricle.—CUSHNY (*Journal of Experimental Medicine;* No. 3, 1897).

It has been the general view that each preparation is capable of producing effects peculiar in some respects to itself. But the physiological effects of digitalein and digitoxin are identical with those of digitalin, except that they do not stimulate the vaso-motor centre or the pneumogastric apparatus, and so do not directly raise blood-pressure or slow the heart. In other words, they increase the force of ventricular contraction. The effect of digitonin is to depress the vagus nerves, so it antagonizes the vagal effect of the digitalin and prevents digitalis from slowing the heart to the extent that would result from the use of digitalin alone. It also depresses the heart muscle.—HARE (*Therapeutic Gazette;* August, 1897).

ACTION ON BRAIN AND CORD.—It is now generally held that digitalis, in therapeutic doses, has little effect upon either the brain or the spinal cord, but earlier writers laid great stress upon its "mildly-irritant" properties as regards both, and that as it became cumulative it tended to "confuse the mental faculties." There are some observers who, to this day, ascribe the antithermic action of the drug to an effect upon the cord, whereas it becomes an antipyretic solely by its influence upon the circulation. In pyrexias there is partial vaso-motor paralysis with dilated arterioles, low blood-pressure, and increased tissue change in and around the dilated terminal vessels; consequently by contracting these vessels digitalis raises blood-pressure, it being well understood that, as the latter takes place, the temperature falls, and *vice versa.* In other words, there is always an antagonism between temperature and blood-pressure.

While ordinary doses do not affect the brain, as the drug becomes "cumulative," or it is pushed to a point approaching toxicity, the reflexes of the spinal cord seem to be somewhat lessened. As before shown, under ordinary doses, there is probably some stimulation of the vaso-motor and pneumogastric nerves.

The toxic dose of digitalis primarily inhibits reflex action by stimulation of Setschenow's centre, and subsequently directly paralyzes the motor tract of the spinal cord. This influence is not, however, very apparent, even in the lower mammals, and in the human being the symptoms of poisoning are chiefly manifested in irritation of the stomach and disturbance of the circulation.—H. C. WOOD (Principles and Practice of Therapeutics; 1894).

ACTION ON URINARY APPARATUS.—Under certain conditions digitalis seems to increase the flow of urine without altering, in any essential respect, the quantity or proportion of its solid ingredients; but, strange to say, this action is seldom manifested in the healthy human subject, though it is apt to be very pronounced when there is an accumulation of fluid to be removed. In truth, the manifestations of digitalis are often inconsistent and varying as regards renal secretion, and are probably in great measure indirect and secondary. As before intimated, the infusion is the most reliable form to exhibit for such purpose, and doubtless here the watery menstruum should receive a due portion of credit. That the drug is, in any sense, adenagic or a stimulant to glandular tissue, and consequently diuretic because of such action, receives little credence these days. A fairly free use of alcoholics in connection with the infusion seems to enhance the activity of digitalis as regards the kidneys, but a better method is to combine with the latter a minute portion of cantharides.

It is demonstrated that digitalis diminishes the relative amount of urea in the urine; and that this diminution corresponds with the depression of circulation, and is the corollary of it. The action of this agent as an antiphlogistic is thus explained.—*Gazette Hebdomedaire;* August 12th, 1870.

Digitalis has no pronounced constant effect upon nitrogenous elimination.—ALEXEEXVSKY (Inaugural Dissertation; St. Petersburg, 1890).

The drug increases the consumption of the chlorides, sulphates and phosphates.—BELJAKOW (*Schmidt's Jahrbucher,* Bund, 219, 1891).

Digitalis increases the amount of solids eliminated in the urine, except urea and uric acid, which are diminished under its use.—BIDDLE (Materia Medica and Therapeutics; 1895).

The effect of digitalis upon the kidneys is

very uncertain. Some have found that in health it is a diuretic, and some have not, and the same discrepancy in its action on the kidney exists as regards patients with heart disease, though generally in these cases it is diuretic. The reasons for these discrepancies are that, if the arterial, like the other vessels in the body, be tightly contracted by the drug, very little blood will go to the kidney, and very little urine consequently be secreted; but if the drug does not constrict the renal vessels markedly, the increased cardiac force and the general rise of blood-pressure will send more blood through the kidney and more urine will be secreted. Some state that digitalein and digitoxin have a special effect in relaxing the vessels of the kidney; and, if this is so, the question is still more complicated, for then the diuretic influence of digitalis will depend largely upon the particular preparation which is given. The truth probably is that, with a small dose, or in the first stage of a large one, the vessels of the kidney are contracted and the flow of urine diminished; but the renal arterioles, being the first in the body to suffer from subsequent arterial relaxation, dilate, while the general blood-pressure is still high, and then the drug acts as a powerful diuretic. There is no certain knowledge of the effect of digitalis on the constituents of the urine.—Hale White (Materia Medica and Therapeutics; London, 1896).

The generally-received opinion is that, of all the preparations of digitalis, those obtained by maceration possesses the most marked diuretic properties, while digitalein shows the least. This, however, is an error, and in every case the plant possesses properties very variable, according to the country in which it grows; this is shown by the great variation in dosage, and in this way may be explained the harmlessness of the very large doses used in Roumania in the treatment of pneumonia. Further than this, faulty methods of preservation and the substitution in part, of leaves similar in appearance give rise to variations in strength. Thus, some failures which have been attributed to too great degeneration of the myocardium should rather have been laid to faulty methods of collection and preservation. For these reasons the infusion, from a pharmaceutical standpoint, should be considered as an inferior preparation to crystallized digitaline, which is always the same. An important fact, which has not been taken into consideration by those investigating the infusion, is that the leaves contain large quantities of calcium and potassium chlorides. These salts belong to that class of very diffusible agents which have the power of filtration through animal membranes, which explains their diuretic action.—Huchard (*Journal des Practiciens;* No. 48, 1896).

In the general irritation influence upon organic function it may cause a so marked impression upon the kidney circulation as to result in spasm of vessel walls and suspension of renal action.—Supression of urine with profound albuminaria.—Ellingwood (Materia Medica, Therapeutics and Pharmacology: 1900; page 247.)

In medicinal doses the drug is sedative, and secondarily diuretic.—Many affirm that it has no diuretic power, and in health it is known to generally lessen secretion of both solid and fluid constituents of the urine.....It is more than probable that diuresis induced by this drug is had only in those cases in which diminished secretion of urine is due to debility or some other form of cardiac embarrasment; Brunton asserts it is due to special action upon the Malpighian bodies and not to augmented blood pressure alone.—Felter and Lloyd (King's American Dispensatory, 1900; vol. 1, page 655).

Action as an Antipyretic.—Why toxic doses cause a fall of temperature, even in health, is one of the physiological problems that yet awaits satisfactory solution; or why, with this depressed temperature, muscular paralysis is apt to supervene.

Action on Uterus.—The muscular substance of the uterus is powerfully contracted by digitalis. It was long supposed that this action was the result of stimulation of uterine ganglia, but it is now believed to be due to the affinity of the drug for unstriped muscular fibre. In uterine hæmorrhage, when administered, the patient (usually in about ten minutes) complains of very severe pain in the region of the sacrum, which passes into the hypogastrium, and in every respect seems to resemble the pain of the first stage of labor; very shortly afterward a considerable quantity of blood, generally in part coagulated, is forced out from the womb.

In a case of labor three drachms of tincture of digitalis were given by mistake. The drug was retained, there being only a moderate amount of systemic disturbance. A teaspoonful

of fluid extract ergot was given soon afterward. The severity of the after pains, and the apparent antagonistic action of the ergot made the case on of clinical interest.—KOEHLER (*Medical Record;* July 6th, 1895).

In woman digitalis, like ergot, causes contraction of the fibres of the enlarged or gravid uterus thereby arresting hæmorrhage.

In men it primarily lessens the supply of blood to the erectile tissues of the penis, preventing and enfeebling erections and consequently diminishing the veneral desires.—FELTER and LLOYD (King's American Dispensatory; 1900; 1900; volume 1; page 655).

As digitalis has been employed somewhat extensively and successfully in simple menorrhagia, its affinity for the reproductive apparatus of the female seems well established. It has been employed, in cases where an hysterectomy seemed imperatively demanded, with absolute and phenomenal success. Some authors go so far as to accredit with emmenagogue properties, but the evidence offered is, to say the least, of somewhat hazy character; and yet the drug continues to be employed as an ecbolic and abortifacient in many parts of Europe.

Incompatibles.—The drug and its derivatives are incompatible with solutions embodying salts of iron or of lead: likewise with tannin and tannates. Therapeutically it is antagonized by aconite and the derivatives thereof, by scoparine, muscarine, saponin, staphisagria and its alkaloid, and by all the belladonna group.

Continued.)

Correspondence.

FROG IN THE STOMACH.

EDITOR DETROIT MEDICAL JOURNAL,

DEAR SIR—The "Lizard Story" which appeared editorially in the October issue of your JOURNAL calls to mind a case of a "said to be mouse" in the stomach.

About twenty-five years ago I attended a Mrs. W.—who was suffering from gastritis with hysteria: The vomiting, nausea, and "gone feeling" in the stomach were persistently present; and finally she conceived the idea there was a mouse in her stomach. She could "feel it creep" and also "could feel it nibbling her 'inards.'"

This was in summer time. I visited her one rainy day at which time she was certain sure the mouse was in her stomach. After drying my clothes before an open fire, I deemed it best to administer an emetic, first assuring her that there was "no mouse in that."

Presently she became nauseated and begged for a drink,—so I gave her warm water of which she imbibed fully a pint. Soon she began vomiting and called me to come to her as she was "going to die, sure." The house was built of logs, and as I stepped to the bedside, with one hand I lifted the mug and placed it on a chair. When she began to retch I placed my hand on her forehead and (when vomiting began) reached my other hand to the wall, to steady myself in the somewhat akward position I was obliged to assume, and by so doing disturbed the repose of a good sized tree-frog.

The frog made a leap and landed in the mug just as there was a powerful gush from the stomach. Mrs. W. at once saw the creature and screamed "There it is! *There it is!!* I told you it was a mouse, but it is a frog; and you knew all the time it was a frog and so gave me a puke to make me throw it up!"

The sequel can well be imagined: I did not deem it either safe or necessary to tell her the facts, or to inform the women present that the frog leaped from the wall into the mug—that the whole affair was an accidental coincidence. To this day the family, and those who were present, believe that Mrs. W. vomited a frog.

Success to the DETROIT MEDICAL JOURNAL. Most sincerely yours,

Utica, Mo.,
Oct. 29th, 1901. T. R. DICE.

The Trained Man.—

A man may be brimful and running over with facts and information of every kind, and still be a fool. He is educated, who is so trained in his perceptive faculties, in his analytical powers, and in all his abilities of one kind and another that, put him down in the midst of difficult surroundings, he will be able to see where he is, to understand what the occasion calls for, and be able to master his conditions instead of being overwhelmed by them.—SAVAGE (*Social Science*).

DETROIT MEDICAL JOURNAL

A CONCISE MONTHLY
EPITOME OF PRACTICE AND THERAPEUTICS.

DR. G. ARCHIE STOCKWELL, Editor.

—ISSUED BY—

THE DETROIT MEDICAL JOURNAL CO.,

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DETROIT, MICH., NOVEMBER, 1901.

NEW CLINICAL LABORATORY.

Recognizing a need accruing to a medical centre such as Detroit has become, a number of enterprising and public-spirited medical men, without regard to sectarianism, have united to establish a clinical laboratory that will meet the demand made by constantly advancing medical science. A company has been incorporated under the laws of Michigan which, at an early date will provide an institution fully equipped for special study and examination and scientific research—bacteriological, histological, pathological, chemical, therapeutical and microscopical; even the aids of photography and micro-photography will be utilized.

The Board of Direction and Control has been chosen from among the leading and representative members of the medical profession in Detroit, and the enterprise is free from any affiliation with specific medical organizations. A staff of experts, to have charge of the various departments has been selected.

This innovation, being purely scientific and free from any taint of commercialism, constitutes an enterprise that may well be emulated, and it is to be hoped that ere long every city of metropolitan importance will possess an institution equipped upon parallel or similar lines. The utility and practical benefits to be derived are innumerable, but obvious. No private individual can hope to compete therewith, not alone on account of the monetary outlay demand, but because of the diverse branches of science involved, each of which requires the co-operation of one or more specially educated and trained observers.

The advantages thus outlined are available to each and every one; a mere nominal fee ($10.00) secures a single share of stock, and thus opens the door to any and every practitioner.

A TERRIBLE ACCIDENT.

The report comes from St. Louis, Missouri, that a large number of children have been done to death by reason of antitoxin, of local production, administered for the relief of supposed diphtheria. At this writing the number of fatalities is placed at *eleven*, with many more to be expected.

The immediate cause of this wholesale series of accidents is claimed to be an artificially induced tetanus derived from the serum of a horse infected with the disease According to the admission of the bacteriologist, the last serum taken from the equine was had on September 24th, when no evidence of disease was manifest; yet a week latter the creature gave such unequivocal evidence of tetanus that it was obliged to be killed.

Two lessons are to be drawn from the foregoing:

First.—The dangers of municipal production of medicaments intended for free distribution since, notoriously, the majority of municipalities—at least those of sufficient size and wealth to permit of indulgence in the luxury of a so-called physiological laboratory — are governed by "rings,"and all offices of executive character farmed out in consonance with political *"pull"* or party affiliations and patronage, with but a shadow of regard for profesional standing, skill or ability:

Second.—The fact seems not to be known that of all creatures the horse is most liable to tetanus, and less likely to manifest def-

inite evidences of infection during the incubative stage.

It goes without saying then, that municipal production of serums, *et id genus omnes,* should be discouraged and frowned upon: Life is too valuable to be juggled with in the interests of politics.—It is only a few years since it was discovered that a large proportion of the vaccine points, provided by a certain city for the purpose of carrying out a house-to-house vaccination during a small-pox scare, were tipped, not with bovine vaccine-lymph, but with *croton oil.* It is certain that no such accident as is reported from St. Louis could have obtained in the laboratory of any reputable private firm.

Under the circumstances, then, it would seem that experiment should be made with other than equine serums for the manufacture of antitoxin, and in consonance therewith, some creature selected that is less liable to tetanus infection than the horse.—The goat, for instance, which has already been proved a reliable animal for the purpose, and is known to be in a great measure immune to tetanic poison.

The wonder is, not that the accident has happened, but that it has not taken place before, considering how widely antitoxin is employed and the constancy with which it is advertised as an absolute and certain specific for diphtheria.

It is now announced that the city of St. Louis will retire from the manufacture of antitoxin.

THE GLYCERO-PHOSPHATES AND FERRO-MANGANATES.*

These preparations, *per se,* appeal forcibly to the medical profession because of their supposed ready assimilability. The use of glycero-phosphates is by no means a new idea, nor is that of the combination of iron and manganese.—The one dates from 1888, and the other from 1852, respectively.

*Copyrighted.

The introduction of the first of these preparations was due to the fact that the combination was deemed physiological, and also from the general acceptation of the idea that all phosphates, or phosphorous compounds, to be of therapeutic utility must be transformed within the economy into a glycero-phosphate, because the latter constitutes the essential component of *Lecithin;* and lecithin is recognized as playing an important rôle in the nutrition of nerve tissue.—As a matter of fact this substance is nothing more or less than a glycero-phosphate of neurine.

Lime and soda as normal constituents of the general tissue, on theoretical grounds, have been selected as offering the acme of physiological opportunity for the introduction of glycero-phosphates into the economy and likewise as assuring ready assimilation. Thus, glycero-phosphate of soda and lime are accepted not only as powerful, but among the most certain of therapeutic agents for strictly up-building nerve tissue; they are claimed to be to the nervous system what iron and manganese are supposed to be to the circulatory apparatus.

The action of iron is too well known to require elucidation, yet the salts thereof sometimes fail the practitioner, usually at a most critical moment, and for no appreciable cause.—In chlorosis for instance; in the anæmia arising from cancer and tubercle; during prolonged and profuse suppuration as in septicæmia, pyæmia, etc. Inasmuch as iron, in Nature, is found almost constantly associated with manganese, and separated from it only with the greatest difficulty, and as in most cases where the ferrous salts are indicated, iron does not appear wholly or even dangerously deficient, it was deemed probable that some other agent was lacking in the circulation, and consequently, for analogical reasons, attention was turned to manganese; and this supposition, in 1852, was corroborated clinically by Petrequin

who successfully treated cases of anæmia, (that had wholly resisted the action of the ferrous salts) by means of a combination of iron and manganese. Subsequently, it was definitely demonstrated that each metal is, physiologically essential and complimentary to the other.

Again, of late years the iron salts have fallen greatly in disrepute because of the definite statement (as a result of laboratory investigation merely) that these medicaments ingested by the stomach could be, wholly (or practically so) recovered from the fæces. The parallel, however, is not true of manganese as very little of the mineral is ever found in the excretæ; while the combination of iron and manganese can be recovered only in considerable less quantities and proportions than either of these elements separately—thus justifying the presumption that their unity in Nature is also essential to their medicinal activity within the economy.

With a view to furthering the assimilation of the two metals, recently they have been employed as peptonates, a form that is supposed to insure easy and ready absorption of the basic ingredients on account of the pre-digested form of the peptone, which in turn is a product of the action of a digestive ferment upon some form of albuminoid—(egg-albumen, fibrin, or casein); but this, excepting in so far as it may favor pharmaceutical conveniences, offers no real advantages. It may here be remarked that a good preparation of this class should offer not less than twenty to twenty-five per cent. of glycero-phosphate (lime and soda) nor less than one per cent. of iron and manganese.

The combination, theoretically at least, has a wide therapeutic range, and its applicability may be reasonably extended.

Nervous Maladies.—When there is exhaustion of nerve force, more or less general in character, such as supervenes upon protracted or continued fevers, malignant diseases, etc., the value of glycero-phosphate of lime and soda in conjunction with iron and manganese is considerable. There is not alone the tonic effects that are secured to the nervous and circulatory systems, whereby is obtained an absolute tissue regeneration, but also an alterative secernent action.

In the insomnias of nervous prostration and cerebral anæmia the effects are well exemplified, leading to speedy relief; also in the headaches of nervous exhaustion, such as follow mental strain, brain fag, overwork, insolation ("sun-stroke"), etc., —often occipital in character and tending to temporary dementia. In the intercostal neuralgias of the debilitated, and long-standing, obstinate, forms that frequently seize upon the aged; in the degenerative nerve-changes due to senility; in mental failure and aberration; in paralysis agitans,—in all these when arising from imperfect nutrition or degenerative metabolism, these remedies, singly or in combination, are most effective. Though not true analgesics, in the general acceptation of the term, these agents (especially in combination) often quiet and relieve the suffering due to neuralgic and rheumatic attacks, and especially the cephalalgias that accompany the latter, exemplifying the maxim of Rokitansky that "pain is but the cry of the nerves for good blood," and that it is subdued by providing the element lacking. In like manner the remedy is often effectual in the debility arising from acute and chronic morphinism, alcoholism, cocainism, and poisons of this ilk, but in no sense curative of these conditions *per se*.

Doctor Broadbent, before the Clinical Society (London), announced that several cases of chorea under his charge were materially benefited by the medicament. It has also been found of occasional utility in epilepsy, especially the form that develops through sexual excesses; but in the main it is ineffectual in this form of

neurosis. So, too, it has been employed with remarkable success for the relief of similar ravages provoked by undue indulgence in venery, in onanism, and for functional impotence.

In paralysis of spinal origin but functional in character, it is far superior to nux and strychnine preparations, though these will always possess an adjunctive value; so, too, it checks the progress of locomotor-ataxia and relieves the "lightning pains," opposing this malady (*vide* the maxim of Rokitansky), merely by its tendency to inhibit waste, since it does not in any sense repair; the effect is, simply, giving of tone to the circulatory and nervous systems at large and as a whole, without direct influence upon the specific lesion except in the line of retardation. Yet in all forms of paralysis, when inflamation is present, the medicament—like any other tonic—is contra-indicated.

Osseous System.—In painful conditions of the periosteum attended by subacute inflamation it is markedly beneficial.—Manganese, *per se* has a great affinity for periosteal tissue, and by its combination with iron and glycero-phosphates this tendency is enhanced (for obvious physiological reasons), at the same time repair and healthy growth is stimulated. Here, inasmuch as it is employed as a restorative, a continuous effect is demanded, hence the advisability of small doses, frequently repeated and not too greatly diluted.

In carious and necrosed conditions, it acts not only as a tonic and tissue-builder but (by reason of the stimulant action upon the periosteum) separation of sequestræ are hastened and replaced by new tissue.—Marcacci enumerates thirteen cases in which unequivocal results were obtained. It also appears to promote and hasten the absorption and resolution of adventitious osseous tissue, such as bone tumors, and even the plastic material thrown out to facilitate the repair of fracture, once such has served its purpose.

Anæmia and Chlorosis.—Cases of extreme chlorosis, due to phthisical or scrofulus diathesis, in chloro-anæmia following upon menorrhagia and other hæmorrhages, upon operations such as removal of polypi, etc.,—indeed all disorders of the circulation associated with deficient hæmaglobin, and that are so frequently mistaken for organic disease,—are readily benefited. It must be said, however, that it is apt to prove futile in the chlorosis that supervenes upon cancer, tubercle, pyæmia and septicæmia, until combined with digitalis, when it becomes immediately active; this latter fact is also true of the pernicious form of anæmia when the combination with fox-glove frequently places the medicament far in advance of the arsenical preparations. It is remarkable in its effects upon the chlorosis of young girls just entering womanhood, and also upon the form that develops in newly pubescent males—this latter a malady far more common than is generally supposed.

Cardiac Maladies.—Odier employed in cardalgia with unqualified success; in affections of the heart generally, whether functional or organic, it is best administered in minimum or small doses, oft repeated, since large tend (for some unexplained cause) to depress action and lower blood-pressure.—Probably for the same reason that when ingested directly into the blood current it tends to paralyze voluntary motion and reflex action, and to arrest the heart in diastole.

Renal Affections.—In kidney maladies it is oftentimes effective simply by means of its tonic action, manifested alike upon the circulatory, the nervous, and the vascular systems; hence the happy results that often obtain to its exhibition in chronic renal irritation, in diabetes, in nephritis when accompanied by atony and milky secretion, and in dropsy resultant upon

renal insufficiency. It also relieves vesical and prostatic irritability, especially when due to sexual causes; is in fact sedative and tonic to the entire genito-urinary tract, and slightly increases the flow of urine,—facts that deserve to be especially borne in mind when prescribing. As it is directly restorative to the nervous, circulatory and vascular systems, it is the remedy *per excellence* in the debility of functional impotence.

Pulmonary Diseases.—In lung maladies generally, as well as irremediable cachexias, the combination is without peer or rival, hence its value in phthisis as a restorative, alterative and sedative. It is a true tissue-regenerator, and in this respect is in no way inferior to iodine, cod-liver oil and barium, and an agent of great power where heptization exists; hence of great utility in certain stages of pneumonia, and it is not to be gauged by any other single remedy, or combination of remedies, in the debility that follows the typhoid type. It readily overcomes profound pulmonary engorgement regardless of ætiology; also is effective in chronic bronchitis with bloody or muco-purulent expectoration, and in chronic laryngitis characterized by marked dryness and sense of heat in the throat, especially if the latter is associated—as is commonly the fact —with nervous depression. It mitigates the excessive prostration, feeble pulse, pasty tongue, impaired appetite and digestion in chronic pleurisy, and the hacking cough and diarrhœa of early phthisis —is, in fact, indicated whenever there is destruction of lung tissue. Likewise is of general utility in dyspnœa, regardless of cause.

Diseases of Women.—It is particularly advantageous in the weakness that supervenes upon child-bed; and is (usually) of benefit at the critical period known as the menopause; likewise very effectual in establishing the menstrual flow in amenorrhœa, including that form which has its origin in sea-sickness. In the many forms of dysmenorrhœa—not dependent upon mechanical causes—it is distinctly remedial, and for like reasons, of the utmost value in securing the comfort of those suffering from uterine cancer and leucorrhœic diabetes.

Gout and Rheumatism.—Here the combination is a valuable adjunct to other medicements, though rarely of direct remedial importance (except, perhaps, in gouty dyspepsia and rheumatic conjunctivities) despite the fact it has a slight tendency to combine with uric acid to form soluble urates; but, as just intimated, it is a valuable factor in enhancing and fortifying other medicaments that, within the economy, exert this chemical action with greater certainty and much more satisfactorily.

Hepatic Maladies.—As manganese is a normal constituent of the bile, the preparation oftentimes proves effectual in combating malignant jaundice of malarial origin, by reason of a secernment action; this also should not be overlooked, in the management of convalescence after fevers.

Febrile Maladies.—Though it has been suggested for the treatment of this class of diseases, and certainly is of the utmost utility in certain stages of typhus, typhoid, typhoid-remittent and bilious-remittent, the fact should be remembered that its chief value lies solely in its tonic-secernent action, and that tonics, far from being of benefit in this class of maladies, are apt to be pernicious if exhibited prior to crisis, except, perhaps, for a trifling increase of appetite and improvement of the conditions of the stomach; but it may be readily resorted to after the period of final crisis with confidence. As a medicament in intermittents, the combination, in the majority of instances, is practically worthless except (as already intimated) as an appetizer.

Scrofulus Diathesis and Specific Maladies.—The indications that point out the

value of the remedy in other cases of debility, likewise commend its employment in scrofulosis and all maladies dependent upon impoverished and deficient circulation. No remedy extant is so satisfactory in scurvy—even cases of constitutional syphilis have been speedily cured thereby,—and it certainly is a valuable adjunct to remedies possessed of more specific and alterative activity; So, too, it often affords material satisfaction when exhibited in certain skin maladies, notably, herpes, scabies, psoriasis, excema, etc.

Eye Diseases.—In eye maladies, too, of a certain class, its benefits are very marked, especially in conjunctivitis of strumous origin, more particularly where the disease has, for a long time, resisted every other form of treatment; likewise in corneal ulcerations, and the intermittent forms of ophthalmia that arise from scrofulous diathesis.

The Digestive Apparatus.—Best of all are the effects manifested upon the digestive apparatus. It is not only a pleasant aromatic preparation, but alike agreeable to the palate and stomach. It is an almost panacea for acute dyspepsia, a form of malady that invariably improves under its use, even if it has continually resisted the action of the entire gamut of digestive-ferments. In the various neurosis of the digestive organs which complicate the chlorotic state, it is unequalled and unexcelled; so also in the dyspepsias of gastralgia and gastro-enteritis; in all forms of dyspepsia accompanied by flatulence, or pyrosis; in simple ulcer, etc.—Here small doses, frequently repeated, may not only prove desirable, but will most effectually control existing irritation. There is no medicament that will so effectually relieve the sufferings induced by gastric ulcer, or that is so prompt in inhibiting nausea or vomiting that has resisted all other remedies. It is, alone, an excellent remedy for ulcer of the duodenum.

JOHIMBINE.

This alkaloid was first isolated by Spiegel from the bark of jambehou tree, native to South Africa. The infusion of the bark is particularly accredited with aphrodisiac action which also extends to alkaloid johimbine.

This alkaloid exerts a paralyzing effect, at first upon the cerebrum, then upon the respiratory centres, and finally on the spinal cord; the heart's action ceases owing to paralysis of the cardiac ganglia, this being followed by paralysis of the cardiac muscle. The general paralysis is preceded by a brief period of excitement.

The drug markedly lowers temperature, owing to the paralysis of the vasomotors, whereby is induced increased radiation; also owing to this vaso-motor effect, the penis becomes greatly over-filled with blood, and this engorgement may lead to occasional erections; the latter, however, are not brought about by stimulation of the sexual centers.

Temperature and Sound.—

Any noise not sufficiently loud to arouse a heavy sleeper is said to have an appreciable effect upon head temperature.

We should very much like to have this statement demonstrated.

Gout.—

This malady still continues to afflict one-twelfth of the population of Great Britain, despite the fact the "good old port-wine drinking days" have become fairly obsolete and little more than a tradition.

Paper, New Source of.—

In France a new process has been introduced whereby paper is manufactured from kelp and other sea-weeds. The product is said to rival glass in transparency, and threatens to usurp the place of the latter in the construction of dwellings.

Book Reviews.

A Treatise on the Acute Infectious Exanthemata. By William Thomas Corlett, M. D., L. R. C. P. (London). Fully illustrated. Cloth, 8 vo.; pp. 392. Price, $4.00. The F. A. Davis Co. Philadelphia, 1901.

This work supplies a hiatus that has existed for many years in one branch of medical literature. The difficulties and discomfortures that are encountered by the young practitioner, and that, also, not infrequently, overtake those of more mature years and experiences, are innumerable, both as to diagnosis and management of the more common infectious diseases. The opportunities for instruction in hospitals, infirmaries, and at the bedside, are few and far-between, and moreover accompanied by dangers, alike of infection to the individual and to those with whom he associates. This volume in considerable measure overcomes this lack of instruction—as fully as it is possible for a text book to do; to this end it is very accurately illustrated by means of photographs taken at the bedside, and by colored plates. The diseases treated are: Small-Pox: Vaccine Eruptions or Cow-Pox: Chicken-Pox: Scarlet Fever: Measles, and: Rötheln.

We most heartily endorse the above work for its very complete character, the excellence of its teachings, and the clearness and fidelity of its illustrations.

The Youths Companion. Price $1.75 per year. Peny Mason and Co., Boston.

For three-quarters of a Century The Companion has been published every week as a family paper. In these seventy-five years the paper's constancy to a high standard has won the confidence of the American people. It has kept pace with the growth of the country. Its stories, its special articles, its editorials, its selections represent all that is best in American life. For 1902 the foremost men and women of the English-speaking world have been enlisted as contributors. The work of an unprecedented number of new and promising writers has also been secured. Thus the constantly increasing demand for the best reading suited to all members of the intelligent American household will be fully met.

A twenty-eight-page Prospectus of the 1902 volume and sample copies of the paper will be sent free to any address. Those who subscribe at once, will receive all the issues for the remaining weeks of 1901 free from the time of subscription; also The Companion Calendar for 1902, lithographed in twelve colors and gold.

SPIRAL PLACENTA CURRETTE.

We herewith present an illustration of a new form of currette for which several advantages are claimed:

It can be introduced through a very small dilated cervix:

Will easily separate, from the uterine walls, the placenta which will then act as a tampon to check hæmorrhage:

By a slight turn of the stem and handle, and employing the ordinary motion which accrues to the use of this form of appliance, every portion of adherent placenta may be removed.

Theoretically, at least, this is a desirable instrument in miscarriage where there is retention of placenta tissue.

AN INSTRUMENT ROLL.

This new device promises to supplant the amputating and general operating case; it also may serve the purposes of the gynæcologist and obstetrician. It is provided with forty-two loops adaptable to instruments of all sizes and lengths, up to sixteen inches; at the same time they are prevented from coming in contact with one another.

THE HARTZ RHEOSTAT.

This is a device to be employed with the 110 or 120-volt "direct," or the 50 or 104-volt "alternating," electric current. It reduces the volume of the current so as to give a small lamp of four candle-power a perfectly pure white light—a light nearly double in strength that of any small battery-lamp extant. It can be utilized to illuminate the frontal sinus and to examine either the throat, nose or ear.

VACCINATION INSTRUMENT STERILIZER.

This is made in the shape of a hinged pocket case (2 x 3½ inches), one half being an alcohol lamp with folding supports for the sterilizer, the other half consisting of the sterilizer pan, along with a removable rack holding scarifiers and tweezers; there is also space provided for bottles containing vaccine-virus tubes.

To prepare the sterilier for use it is only necessary to pull out the pin of the hinge, separate the two halves of the case, turn up the supports, and unscrew the cap of the alcohol lamp; then to place the sterilizing pan, partly filled with water, on the supports and light the wick.

Items and News.

Fatigue.—

The blood of the tired animal is poisoned, and when injected into another animal causes the phenomenon of fatigue.—Sir Michael Foster.

Skin Diseases, Diagnosis of.—

Psoriasis is usually situated on extensor surfaces, while eczema, like syphilitic eruptions, usually appears on flexor surfaces.

Disinfectant, An Effective.—

Hydrocyanic acid is a reliable agent for house disinfection; it is also especially serviceable in maritime disinfection, and very effective against certain infectious diseases,—either when used alone or in combination with other gaseous germicides.—Fulton.

Medical Education in United States.—

Chicago with its fourteen medical schools possesses five more than the whole of Russia, or as many as Austria, Switzerland and Denmark combined. St. Louis is not to be out done with her eight schools; Baltimore and Cincinnati possess six schools each.—Rovinsky (*Medical News*).

Bad Teeth a Factor in Disease.—

Thousands of people are possessed of rotten teeth, carrying with them so many small cesspools in mouths filled with fœtid abominations of stinking food-debris with a teeming population of micro-organisms, and the resultant toxines as concomitant, and daily swallowing these putrefactions and absorbing the pus.—Leesown (*New York Medical Journal*).

Theory vs. Practice.—

Not a few people who have glanced at the published photographs of the interior of Brantwood have an uneasy consciousness that, unless the camera prevaricated, Ruskin's taste in domestic decoration would do little credit even to one of the despised race of the Philistines. Apparently the gloomy truth can no longer be concealed. A writer, who visited Brantwood shortly before Ruskin's death, denominates the dwelling "The Unæsthetic House of an Æsthete."—*Daily Chronicle* (London.)

Sterilized Milk.—

Boiled milk requires much more digestive effort than does unboiled, as in the latter the serum-albumen and nucleated cells are absorbed directly by osmosis without chemical change. Milk may be warmed to 160° Farh. without interfering with its digestibility by coagulation of the cell- and serum-albumen.—*Providence Medical Journal.*

The Specialist.—

A physician should spend several years in general practice before adopting a specialty. Specialism has done many good things for medicine; but practitioners should see to it that it is not overdone. If a physician wishes to acquire a broad general culture, it can come only from general practice. The selection of a specialty should, like matrimony, come naturally and without being forced.—Moyer.

A Suggestion.—

There should be established a Materia Medica censor, whose duty it shall be to decide as to the therapeutic value and the ethical character of all (and especially new), drugs and combinations of drugs, offered to the medical profession, as well as a host of allied substances, such as glandular extracts, artificial foods, food-substitutes, and the like.—*Red Cross Notes.*

[All of which is very good, if it could be carried out, and the right censor appointed. But in these days, "too much politics" is the rule, and the remedy might prove worse than the disease.—Ed.]

Olive Oil and the Plague.—

Professor J. P. O'Reilly sends some extracts from a work on Morocco* containing an account of the use of olive oil as a remedy for a form of plague which depopulated West Barbary in 1799-1800. The oil was used to anoint the skin, either before or after infection. Professor O'Reilly points out that the ordinary olive oil of the Levant and of Spain is not the pure clarified oil we know of in this country, but a green and generally more or less rancid oil produced in a coarse way from all sorts of fruit, unsound as well as sound.—*Nature.*

*"An Account of the Empire of Morocco," by James Grey Jackson, 1814.

Therapeutic Brevities.

Typhoid Fever.—Begin treatment by administering saline purgatives—Epsom salt by preference, in dose of two drachms every hour,—until large evacuations are procured. If the tongue remains coated and the abdomen tympanitic and painful, and if the disease has not yet passed the first week, persist in purgative treatment for at least two consecutive days.

If there are no marked and grave nervous symptoms, if the bronchitis is moderate and the fever does not go beyond 103° Fahr. in the evening exacerbations, keep the patient on slightly acid and refrigerant drinks, and increase the action of the skin by combining with the acetate of ammonia. If the temperature is very high (over 104°), have recourse to bathing two or three times a day with alcohol and water, or aromatic vinegar; make use also of calomel in fractional doses and employ ice-caps and blisters to the extremities.

Only at the end of the first week—particularly during the second, when the adynamia has become preponderant, associated as it most always is, with ataxia,—is it desirable to resort to tonic treatment on a large scale. As soon as the ataxic symptoms appear, prescribe ammoniacal preparations, ether, musk, valerian, henbane; or, by enema, camphor, asafœtida or castor.

As soon as cerebral symptoms appear. apply blisters to the lower extremities. This practice, which is not generally accepted, I have followed with the greatest benefit; under the revulsive action of these agents the delirium, coma, restlessness, insomnia, tremor of the extremities, etc., diminish in intensity and often disappear.

Coffee, administered in small and repeated doses, is a powerful resource in the treatment of this fever after the end of the first week.—HOMEM.

Chlorosis, Chronic.—The following will be found most serviceable:

Iron perchloride, tinct.	10 minims
Ether sulphuric, spirit	10 minims
Nux Vomica, tincture...	10 minims
Quassia, tincture.....	12 drachms

To be taken an hour before luncheon, and again before dinner.

—MALCOLM MORRIS.

Hernia, Injection Treatment of.—This method of procedure is so simple that any one can, with ordinary care, perform the operation. The objects gained are manifold, the principal of which are:

The patient's horror of an operation is avoided:

He is not confined to bed:

Comparative absence of danger:

The same result is obtained as by use of the knife (viz., complete obliteration of the canal) and by virtually the same means,—local inflammation and deposit of plastic material.

The method of precedure is to remove the hair on the affected side, then carefully cleanse the part with soap and water. Carefully insert the index finger into the canal, taking pains to push back into the cavity the contents (if any); then insert the hypodermatic needle, directly into the canal and at right angles to it, beyond the tip of the finger, where it can be felt and the needle guided.—This is the most important step of all since, if the fluid be thrown into the tissue surrounding the canal and not into it, inflammation will result but not where it is demanded.—This is the principal reason why this method is so little employed. Having the needle in the canal where it can be felt by the finger, five to ten drops of the following fluid is gently forced in:

Zinc sulphate.....	1 drachm
Alcohol	8 drachms
Carbolic acid.....	2 drachms
Water, to make.....	4 ounces

The finger is now withdrawn and the parts gently kneaded,—as after an ordinary injection. The patient will complain of some pain for a few days, but this is not usually severe.—FEID (*Cincinnati Lancet-Clinic*).

Sea-Sickness.—Doctor James Wortobet has traveled more than 100,000 nautical miles, and usually had under his care several hundred passengers (besides the crew); he therefore speaks from experience when he says that although there may be certain cases of sea-sickness that are of cerebral origin, such are in the minority, and that in the majority the symptoms start from the abdomen. People who are well inured to sea life and are usually quite free from sickness, may

still suffer if they go to sea with loaded bowels, and he is quite sure that by the precaution often taken by experienced travelers in this direction they are protected: This precaution consists of a purgative a day or so before sailing, adopting the recumbent posture, and avoiding oleaginous smells and the company of those who are sea-sick. It is strongly advised that those who habitually suffer from gastric phenomena provide themselves with a flannel bandage, twelve feet long and six inches broad, and wind it round the trunk over the whole width of the abdominal region; this will afford great comfort by preventing the contents of the abdominal viscera from undue movements. Also that for severe retching and persistent sickness nothing is so trustworthy as a hypodermatic injection of morphine.—*The Hospital* (London).

Anal Fissure and Fistula.—These conditions are frequently, if not usually, caused by constipation, hence the necessity of regulating the bowels and relieving congestion of the portal veins. For this purpose give a teaspoonful, in water, before meals, of:

Sodium salicylate.....	2 drachms
Nux vomica, tinct.....	4 drachms
Alterative ext., fluid..	20 drachms

Also apply locally, by means of absorbent cotton, a solution of silver nitrate, ten grains to the ounce, every second day; or chloral hydrate (twenty grains to the ounce) if the fissure is covered with pale, flabby granulations. If these measures fail to stimulate healthy growth, and especially if the edges are hard and thick, pure tincture of iodine may be cautiously applied.—*Medical Summary.*

* * *

In young children fistula may always be regarded as of a tuberculous nature, therefore must not be subjected to a cutting operation without first determining the fact that one has not to do with a spinal abscess that has found an outlet in the ischio-rectal fossa. In these cases a soft probe penetrates very deeply, the child has a stiff or curved back, or shows symptoms of disease of the sacro-iliac synchondrosis.—*International Journal of Surgery.*

Arterio-Sclerosis, The Iodides in.—Sodium and potassium iodide have been used in arterio-sclerosis, excluding those cases accompanied by pronounced cardiac weakness and albuminuria. From fifteen to thirty grains of the first named salt may be given daily in divided doses, in milk or Seltzer water, and after a time followed by potassium iodide in the form of an effervescing salt. The effect is marked in cases accompanied by cardiac distress, particularly angina pectoris.—It seems to be of little consequence whether the arterio-sclerosis is of syphilitic origin or not. Probably the *modus operandi* is, that the morbid process in the blood-vessels is brought to a standstill so that the high blood-pressure is gradually lowered and, therefore, the normal circulating function re-established, at least for a time. While this treatment checks vascular changes, there is no evidence that it restores the tissues to their normal condition.—VIERORDT.

Chloroform as a Medicament.—This drug is valuable (employed externally, in liniments), in cases of muscular rheumatism, and for stiffness of muscles due to strain or excessive exercise. Another use to which it is too rarely put is, for the production of counter-irritation: Slight reddening is rapidly induced by a cloth saturated with chloroform applied to the integument, care being taken that it is so remote from the respiratory apparatus as to avoid inhalation of any large quantity,—even vesication may be obtained by placing a few drops on the skin under a watch glass so that too rapid evaporation will not take place. For those who are unable to take opium in any combination, for the relief of pain, a mixture of thirty drops spirit of chloroform and ten minims of a reliable fluid extract cannabis Indica will prove effective.—*Therapeutic Gazette.*

Neuralgia and Influenza.—

Salicylic acid.....	2 drachms
Turpentine oil.....	2 drachms
Belladonna extract....	4 grains
Vaseline	4 drachms
Lanoline	4 drachms

Rub a large quantity of the ointment into the affected part, which is then wrapped in cotton; this two or three times daily.—CAPITAN.

Whooping-Cough.—A boy, aged nine years, was suffering from a severe attack of whooping-cough. The nose of the patient was irrigated with one to forty solution of carbolic acid; ten to twenty ounces of the solution were passed through the nose three times a day. At first, it caused a good deal of sneezing and coughing and the ejection of a considerable amount of gelatinous mucus, some of which was greenish in color, but after the operation had been performed a few times there was less discomfort and the patient looked forward to the injection as bringing relief from his suffering. The cure was complete in about a week, but the treatment was continued a few days longer in order to prevent the recurrence.—PAYNE (*British Medical Journal*).

Heart, Palpitation of.—The various diseases that are accompanied by this symptom, (incipient acute aortitis, acute endocarditis, acute pericarditis, adhesions of the pericardium, and mitral stenosis or insufficiency) are benefited by digitalis or its substitutes. The following is excellent:

Quinine muriate.....	60 grains
Digitalis, powdered.....	30 grains
Convallaria extract.....	30 grains

Make forty pills of which two or four may be taken daily.

—HUCHARD (*Archives de Médicine et de Pharmacie Militaries*).

Alcohol, Subcutaneously.—A small amount of alcohol should be employed in normal saline solutions, in cases where a direct cardiac stimulant is required. The salt solution containing whisky is more prompt and certain in its results than the plain physiologic salt solution. The pulse was distinctly reduced in rate and increased in force by the use of the combination in a case of serious toxæmic and fulminating appendicitis. I suggest it as worthy of a further trial.—EASTMAN.

Obesity.—Sponging the body twice daily with a one to sixteen solution of magnesium sulphate, at the same time administering a teaspoonful every six hours, of the same remedy internally, will reduce obesity rapidly.

Applied to a cicatrix the solution will remove the scar.—BRODNAX.

Goitre.—Fourteen cases, ten females and four males, were treated by thyrodectomy with only one fatality, and this occurred on the fifth day from softening of the trachea which tracheotomy failed to relieve. The patient should be prepared for the operation by a long course of iodoform administered internally in the form of pills.—Never operate without this, unless the symptoms are very urgent.

Enucleation is the best method, and preference is given to the single median incision. It is very necessary to prevent the loss of blood by the lavish use of forceps, but it is not essential to wash out the sac with antiseptics.—REVERDIN (*Le Progrès Mêdical*).

Gravel-Plant.—The action of *Epigea repens* is similar to that of uva ursi and buchu, but it gives far better results. In cystitis employ twenty to thirty drops of fluid extract, every three hours, until a positive effect is produced. In chronic muco-cystitis it is extremely valuable and may be alternated, or given with fluid extract *Rhus aromatica,* twenty drops every three hours. It is also to be recommended in suppression of urine, inflammation of the urethra, and where there are deposits of oxalates.

It acts promptly in diabetes mellitus when alternated with rhus; likewise is useful in chronic Bright's disease.—ROTHROCK (*Wisconsin Medical Recorder*).

Cactus Grandiflorus.—The fluid extract, in doses of from five to ten drops three times a day, is an excellent heart stimulant and substitute for digitalis. It does not prolong diastole as does the latter, and on this account is of value in diastolic murmurs. It is also valuable in functional disorders of the heart connected with neurasthenia, anæmia, exophthalmic goitre, tobacco habit, etc.—HERWISCH (*Philadelphia Polyclinic*).

Asthma.—Use either belladonna or lobelia. The reason why these drugs have not a greater reputation in this malady is, that they are not given in sufficiently large doses. Either must be administered in quantities sufficient to produce the physiological effects.—SALTER (*The Lancet,* London).

Santonin, Poisoning by.—A fatal case occured in an infant eleven months old. The principal symptoms were: Great abdominal tenderness, especially in the right iliac region,—pressure here producing convulsive movements of the extremities ; respiration shallow and rapid; golden-yellow stools and urine,—the latter first increased and then suppressed; profuse salivation; progressive rise of temperature and feebleness of pulse; jaundice; prolonged stupor.—TAYLOR (*Medical Record*).

Atropine in Eye Diseases.—In no case of questionable diagnosis, in persons over forty, should this drug be employed:

In every instance, while using, except in threatened perforating ulcers, the tension of the eye should be taken daily:

In all, where it is necessary to use for several weeks, an occasional instillation of eserine is a good safeguard:

That numerous cases of glaucoma are caused by the injudicious use of atropine there can be no doubt.—*Archives of Ophthalmology.*

Eczema and Alcohol.— A man who had been in the habit of taking stimulants every day for a number of years, (though never in excess), was suddenly laid up with an attack of eczema. When the alcohol was stopped, under simple treatment he got well. When he went back to his old habit he had a second attack of eczema. It was then suggested that he leave off alcoholic beverages altogether. He did so, and has not had eczema since.—*Brooklyn Medical Journal.*

Amyl Salicylate.—This is an excellent substitute for methyl salicylate, being fully as active, lacking the disagreeable odor, and is no more irritating. Fifteen to thirty minims may be painted over the rheumatic joint, which is then covered with a sheet of rubber, and a rapid diminution of pain and swelling follows. The results of administration by the mouth have been equally as satisfactory as those due to local application.—LYONET (*La Médicine Moderne*).

Ozæna.—If the nasal bones are sore to the touch and the discharge fœtid, berberis will do good.—BLOYER.

Erigeron Oil.—This is an excellent hæmostatic or styptic for internal administration, its action being very like that of turpentine, which it will replace to advantage in many instances. It is sometimes of use in gleet, though not superior to copaiba or santal oil. Its most useful field would appear to be uterine hæmorrhages, metrorrhagias, and menorrhagias. The dose is five to ten minims, dropped on sugar, or made into an emulsion.—*St. Louis Clinique.*

American Bitter-Cup.—Cups are turned from *Carissa Xilopieron,* which, when filled with water or wine, after a time impart thereto a bitter flavor, when the liquid becomes febrifuge, stomachic, and vermifuge. In the Mauritius, where the plant is known by the name of "bitter-wood," it is used as a tonic, diuretic, and febrifuge. The fluid extract is administered in intermittent fever as an auxiliary to quinine.—*Fortschritte der Medicin.*

Epsom Salts, How to Give.—Use just enough water to dissolve the salts completely. First drink two large swallows of water, then take the salts quickly; follow with the remainder of the water in the glass. In this way you will not taste the salts.—PUTNAM (*American Medicine*).

[Hot water is preferable to cold or lukewarm, both as to activity and palatability. —Ed.]

Pulmonary Gangrene.—Give inhalation of solution of mercury bichloride three times daily, employing twenty cubic centimetres at each sitting. The solution should be of the strength of five centigrammes to 1,000 grammes of water.—KORAZY (*L'Union Medical.*)

Painful Hypodermatics.—The pain induced by the prick of the hypodermatic needle may usually be obviated by touching the point of insertion with carbolic acid, chemically pure.—*Medical World.*

Nasal Hæmorrhage.—If the patient is plethoric use bryonia. If it occurs only in the morning try sepia.—MOHER.

When all else fails employ camphor.—HOLBEN (*Homœopathic Envoy*).

Strabismus.—During the boyhood of a gentleman, now aged thirty, and who presents a perfectly natural appearance, I employed a gentle Faradic current, under which the eye ball became straight. The application was prolonged for a full hour at each session, and repeated on many occasions.

The reason that electricity has not gained ground in the treatment of squint is, the slowness of its action, or rather, the necessity for its frequent repetition. It is, however, scientific, painless, simple, and properly carried out, effective.—RICHARDSON (*The Asclepiad*).

Rectal Feeding in Peptic Ulcer.—Nutrient injection of peptonized food is a valuable method in gastric ulcer. The tube must be inserted beyond the sigmoid flexure if possible (at least eight or twelve inches inside the rectum), and the fluid injected slowly. Efforts at expulsion are prevented by a pad, and the enema should be repeated every six hours. It is not claimed that all the necessary nourishment can be furnished this way, but the improvement of the patient by this method is encouraging.—SEARS.

Staphisagria.—This drug influences the nervous system, the bladder and the kidneys, lessening irritation and strengthening function. It is excellent for prostatorrhœa, nocturnal emissions, simple urethritis or gonorrhœa; it checks the discharge, strengthens the seminal vesicles and testes, and overcomes enlargement of the prostate. Meanwhile saw palmetto adds tone to the vesical muscular-fiber. —BLOYER (*Medical Gleaner*).

Migraine.—

Acetic Ether	15 parts
Sweet Orange oil	3 parts
Thyme	3 parts
Clove oil	3 parts
Lavender oil	3 parts
Lemon oil	6 parts
Rosemary oil	7 parts
Menthol	5 parts
Alcohol (90 per cent.)	150 parts

To be applied to the forehead.

—*Deutsche Apotheke Zeitung.*

[Note.—This is practically the preparation known under the trade name of Acetal.—Ed.]

Catarrh, Chronic Post-Nasal.—

Camphor	60 grains
Tannic acid	60 grains
White Sugar	60 grains
Snuff, (Welsh "high-dried")	60 grains

Use a pinch morning and evening, and once or twice during the day.

The remedy should be discontinued if a fresh attack of nasal catarrh sets in, but be resumed on the subsidence of inflammatory symptoms.—DOBELL.

Constipation and Pelvic Congestion.—

Magnesium sulphate	8 drachms
Iron sulphate	20 grains
Manganese sulphate	20 grains
Sulphuric acid, dilute	120 minims
Water	4 ounces

A table-spoonfull in a wineglass of water before breakfast.

—*Medical News.*

Hæmorrhoidal Ointment.—

Chrysarobin	20 grains
Iodoform	10 grains
Belladonna extract	20 grains
Vaseline	1 ounce

Apply two or three times daily.

—KOSSOBERDCKJI (*Journal de Médicine de Paris*).

Styes.—These are usually due to eye-strain. The following wash is recommended:

Boracic acid	60 grains
Distilled water	4 drachms

Bathe the eyelids every hour.

—KEIPER.

Headache, Ovarian.—

Ammonium bromide	360 grains
Golden-Seal ext., fld	240 minims
Gentian compound, tincture	12 drachms
Water	4 drachms

A dessert-spoonfull three times daily.

—*Medical News.*

Synovitis.—Apply, as hot as possible, upon layers of lint changed every hour and covered with oil silk:

Chloral	4 drachms
Carbolic acid	30 grains
Water, to make	16 ounces

—*British Medical Journal.*

Cocaine, To Keep.—

Cocaine muriate	8 grains
Salicylic acid	1 grain
Distilled water	6 drachms

—*Journal des Praticiens.*

Progress.

Cough.—

All coughs are either moist or dry. The former is nearly always paroxysmal and expectoration is usually most abundant in the morning; this, like all others, is often nearly or quite suppressed toward the fatal end of most grave diseases, owing to carbon dioxide narcosis.

Pulmonary coughs are marked by more or less percussion dullness, and by double sub-crepitant and inspiratory crepitant râles or bronchial breathing. The bronchial class is marked by soreness, oppression, pain and irritation in the upper sternal region, and by moist double râles.

A dry cough is usually short, sharp, and hacking, though sometimes paroxysmal. Reflex forms are generally quickly relieved by treating the local cause. There is inability to cough in bulbar paralysis and extensive destruction of the larynx. A dry, pulmonary cough is accompanied by broncho-vesicular or bronchial breathing and impaired resonance.

Dry bronchial coughs are tight and harsh, with sonorous and sibilant râles.

Laryngeal coughs are hoarse, harsh, deep and rough, with altered voice and laryngeal pricking, burning and soreness, and a constant desire to clear the throat.

The pharyngeal form is accompanied by a pricking feeling in the throat or feeling of fullness.

Nasal coughs are marked by local signs and by "hawking" mucus from the posterior nares.

Faucial cough is usually worse on lying down and attended by a tickling in the throat.

Oral cough is due to irritation of tongue or teeth.

Aural coughs are due to irritation of the auriculo-temporal branch of the fifth nerve, and may be accompanied by considerable expectoration.

Coughs of pleuritic character are generally accompanied by quick and painful breathing, and often friction-murmurs or flatness.

Pressure on the respiratory tract by tumors or pseudo-tumors excites a cough, laryngeal in character.

Visceral disease is a rare cause of cough, and diagnosis should be made by strict exclusion.

A uterine cough is hacking, very painful and tiring, and repeated two or three times in succession; is excited by the least irritation.

Nervous coughs are periodic or paroxysmal, usually high as to tone, quite variable (slight or prolonged) and painful; two important characteristics are that they disappear entirely during sleep, and are accompanied by no secretion whatever; on auscultation there are sometimes wheezing, rattling, scraping sounds, and there may be spasms, convulsions or aphonia. —*Denver Medical Times.*

Smell, The Sense of.—

That we have not entirely lost this animal basis of judgment is proved by the fact we do tell ourselves very much of other people by the nose, often unconsciously.—The blind distinguish their friends by the smell of handkerchiefs or coats. Unconscious sensations and unconscious judgments form a splendid field for research, and a very rich one. We know gar more by smell that revels in a confusion of odors than is supposed. The vulgar classes have, apparently, become degraded in senses as well as habits, for their basis of social judgment is below that of the animals. It is observed that those who, fortunately, have had their senses keenly educated, are accustomed to judge of persons by odors, and such should not be a lost power. The eye does not possess the power to cover the subtle relation of individualities, neither does the ear. The finer sense is that of smell, dishonored, as it has been, and despised, as it should not be. Australian children possess the dog-like sense of trailing people by scent, and experiment reveals that this is to some degree present in every one. Strong attachments are not so rigidly ideal as we like to suppose: There is a physical basis to all our likes and dislikes. It is this which underlies the demand of refined people that their friends shall be cleanly. Our social ties have created the maxim that "cleanliness is next to godliness."—*The Open Court.*

Tuberculosis.—

Where the temperature persists above 100° Farh., without any apparent cause, tuberculosis should be suspected and sought for.—*Canadian Practitioner.*

Pædiatric Hints.—

Contracted pupils are the rule during sleep in childhood; they are also to be noted during the waking hours in beginning meningitis and in opium narcosis. Widely dilated pupils which fail to respond readily to light are seen in cerebral affections, and unequal pupils are indicative of brain affection.

When the hair is thinned or worn off the back of the head, investigate carefully for rickets.

Never ask to put out the tongue; touch the chin gently with the tip of the forefinger and gradually increase the pressure, and most children will unconsciously open the mouth.

Color liquid medicines with carmine or chlorophyll. Hue has a marked influence upon the child who has been dosed with black or clear mixtures.

Keep vinegar boiling in a tin cup over a lamp in the room where there is bronchitis, whooping cough, tonsilitis, diphtheria, or measles; half an ounce of turpentine to eight ounces of water is another excellent antiseptic, expectorant, air moistener.—Lay two nails across the top of the chimney, light the lamp, place the tin cup on the nails, and thereby is had a very good substitute for a high-priced vaporizer.

Tincture of iodine often frightens young children if they notice the brown discoloration of the skin, hence keep the area out of their sight till clothing is replaced.

Do not fail to try the cotton jacket in bronchitis and pneumonia; have the mother quilt cotton batting inside a loose undershirt, and the jacket is made. In removing after convalescence, pluck it off a little at a time, and there will be no danger of taking cold, as might happen if removed entire.

The best syringe for the young infant is the soft-rubber bulb with soft nozzle, known as the "Ear and Ulcer" syringe; it is safe in any hands, and contains but one ounce, so that danger of excessive quantity of fluid is avoided.—*Medical Council.*

Intra-Uterine Mucus.—

This excretion is normally not only sterile but germicidal in nature.—*Medical Recorder.*

Scoliosis in Adolescents.—

Aim to diminish the rigidity of the spine and its lateral curvature, the thoracic deformity and the posterior costal angle. The suspension apparatus is useful in ordinary cases, and for those more advanced, a traction-apparatus. The thoracic deformity should be treated by manual pressure in the direction opposed to that in which the spine is curved while the patient is suspended in the apparatus. To diminish the costal angle the apparatus of Lorenz-Redard and a modified form of the appliance of Barwell may be employed. In order to retain any gain in position, in the intervals between the seances with the apparatus, apply a plaster-of-Paris jacket. In all cases, however far advanced, it is possible to arrest the progress of the deformity and lessen the pain, and in more than fifty per cent. considerable improvement can be obtained; complete cure is possible in ten per cent. It is impossible to predict at the first examination how much can be done for the patient.—GOURDIN (*Annales de Médicine et Chirurgie Infantiles*).

Spinal Irritation.—

This term should be banished from medical nomenclature. The pain and tenderness along the vertebræ commonly known by this title have nothing to do with the spinal cord or its membranes, or with the spinal column. In so-called spinal irritation there are tender points along the spine. If these change their location every five or ten minutes, such shifting demonstrates that the disease, so far as the tender parts are concerned, is entirely functional and situated not lower than the cerebral cortex. Upon the correct differentiation between positive spinal irritation and functional disturbance (the seat of which is probably in the cerebral cortex), the success of the treatment in a great measure depends.—PATRICK (*Medicine*).

Bright's Disease.—

Free uric acid is present in the blood in the majority of cases of this form of kidney disease, as may be proved by the murexide test, or by the microscope.—VON JAKSCH.

Artificial Abortion.—

The indications for terminating gestation artificially having been satisfactorily arrived at, the operation should be undertaken at as early a period as possible, and within a few days or weeks after menstruation has failed to take place. Introduce a curved metallic catheter to the very fundus of the uterus, and through it inject from forty-five to sixty minims of tincture of iodine; withdraw the catheter, and lay a tampon against the os uteri to absorb any iodine that may trickle into the vagina. This procedure is so simple and so utterly devoid of danger that the patient may be allowed to go to her home immediately after its performance, and need not even be instructed to go to bed. Usually, on the third day a discharge of blood makes its appearance, and the expulsive action of the uterus comes into play; if these do not occur the procedure is to be repeated. No untoward results have ever been observed.—OEHLSCHLAGER (*Centralblatt für Gynäkologie*).

Cerebral Uræmia.—

There are two factors related to cerebral uræmia: A dominating toxic element caused by the falure of the diseased kidney to perform a satisfactory elimination of the debris of the organism: A mechanical factor, cerebral œdema, the localization of which in motor zones may cause convulsions, either general or limited to one side, to one member, or merely to several facial muscles. In some cases the uræmia presents an apoplectic form, in others it is hemiplegic; both depend, however, on cerebral œdema. Uræmia causes many cases of hemiplegia ordinarily supposed to be due to hæmorrhage or softening. Autopsy often shows no lesion, but this may be accounted for by the theory that the area of œdema disappeared at the moment of death.—*Health* (London).

Appendicitis.—

If suppuration threatens, it will be announced by chills, higher temperature and quickened pulse. The swelling in the abdomen will become more prominent; the character of the pain will change, and every symptom of pus formation will be present. Then, whether to operate or not becomes the question. If the inflammatory action going on were confined exclusively to the appendix, one might hope to eliminate it entirely by removal of this organ; but this is rarely the case, for usually the cœcum is first inflamed, and the appendix afterward, through extension. If, then, the appendix is removed there is still left the inflamed cœcum!

Supposing that the operation is not performed and an abscess forms? In that case the tissues surrounding are re-enforced by material thrown around them. Finding its advent in the direction of least resistance, it will open into the colon in nearly every case, and the patient will not lose his life. Does surgical interference offer so much?—*American Medical Journal.*

Arsenic, Action of.—

Arsenic interferes with the normal metabolism, but the exact nature of the chemical changes which occur is not understood. While beneficial in very minute doses, in sufficiently large quantities it is able to induce inflammation in any part of the body, either when applied directly or through the circulation. The stomach may be irritated by direct action, or after the drug is absorbed the stomach may become the seat of inflamation from the arsenic in the circulation.

Arsenic in the circulation reaches all tissues. Almost all of the symptoms are produced by the action of the irritant in this manner. There can be little or no doubt that the recent Manchester epidemic was due to this poison, because there was an absence of any other sufficient cause; sufficient arsenic was discovered to produce the symptoms of poisoning, and the symptoms were identical with those produced by arsenic taken in other ways.—BRUNTON (*The Lancet,* London).

Regeneration of the Spleen.—

Laudenbach almost completely extirpated the spleen of a dog only to discover, six months later, that the organ was completely regenerated. At the spot where the mesentery had been ligated was a twisted mass of new fibrous tissue, from below which a fibrous band carrying blood-vessels passed to the newly formed spleen. Other vessels passed to the regenerated organ in a newly formed mesentery.—*British Medical Journal.*

Uric Acid, Rôle of.—

Some of the fallacies of uric acid are:

That it is toxic, and a causative factor in any disease except gout:

That a condition denominated uric-acidæmia (meaning the presence of uric acid in the blood) exists:

That the chemical reaction of the blood may be altered by the use of medicinal quantities of the alkalies, or by diet:

That uratic deposits can be dissolved out by means of alkalies taken into the stomach:

That lithium is a uric acid solvent of unusual efficacy:

That uric acid is an abnormal constituent of urine:

That an excess of uric acid in urine at one time, or deficiency at another, indicates an abnormal condition in reference to uric acid:

That rheumatism is due to uric acid.—Billings (*American Medicine*).

Rectocele.—

Make a triangular flap on the vaginal wall at the highest point on the rectocele, from the base of which carry two cuts down to the point on each labium where apposition will re-establish the normal perineum. Denude the space between these, excepting the triangular space mentioned, and bring together the edges of the outer incision by means of buried sutures fastened by perforated shot (making altogether a sort of a Y-shaped line of sutures). This is the best means of attaining the cardinal needs of the case, viz.—repair of the perineum; taking the slack from the lateral walls; removing the rectocele, and supplying in its stead, in the posterior wall, a contracted, cicatricial column, with prong projections into the vaginal fornix, which most nearly restores the parts to their normal function and gives support to the organs above.—Lott (*Charlotte Medical Journal*).

Electro-Static Ray and Kidney Stone.—

I believe the time has arrived when it becomes the duty of each practitioner to subject each and every case of any affection pointing to a pathologic nephro-ureteral condition to the X-ray.—Macrae (*American Medicine*).

To Make Milk Digestible.—

Gently warm a pint of milk, into which drop, very slowly and with constant stirring, about twenty minims of dilute hydrochloric acid.—The milk should be stirred until it cools. By this means a very fine flocculent coagulum is produced, floating in the whey, that is easily accessible to the digestive secretions, while the whole fluid has lost somewhat of the flat and cloying taste which makes it unacceptable to so many.

It will be noticed that milk prepared in this differs from the various wheys in the highly important particular that the casein is retained and used, instead of being separated out as a distinct product, while it avoids the bitterness of pancreatinized milk.—Edes (*New York Medical Times*).

Liver, Vitality of:—

When degeneration occurs in the liver, the cells regenerate, producing tissue to take the place of that destroyed. According to Chauffard compensatory hypertrophy always occurs in the liver; this is the condition ordinarily found in diffuse or nodular parenchymatous hypertrophy. In acute yellow atrophy also, the regenerating cells are found in great numbers with those that have degenerated.—*Modern Medical Science.*

Albuminuria.—

A catarrh of the stomach and intestines exists, non-inflammatory, that is attended by the appearance of albumen and casts in the urine. The loss of water by diarrhœa may account for the albuminuria to some extent, but there is, undoubtedly, some toxic influence also present. There is a lessened water-supply in cases of constipation, owing to diminished ingestion of foods and fluids.—Stiller (*Medical Record*).

Iritis and Glaucoma.—

A symptom of iritis and glaucoma is, neuralgia of one side of the head, accompanied with inflammation of the eye.—*Practical Medicine.*

Hysteria.—

This malady, which has so many masquerades, may be often detected by the fact that the temperature is subnormal.—Cutter.

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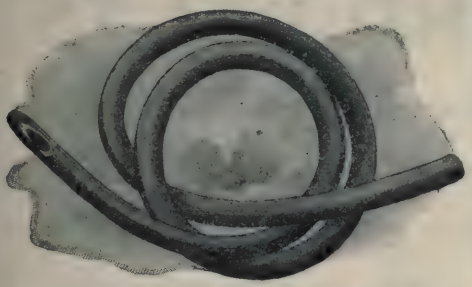

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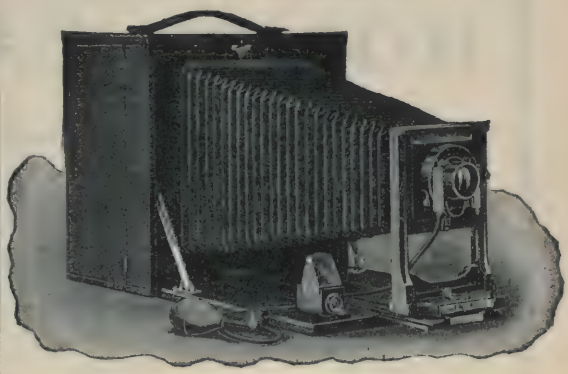

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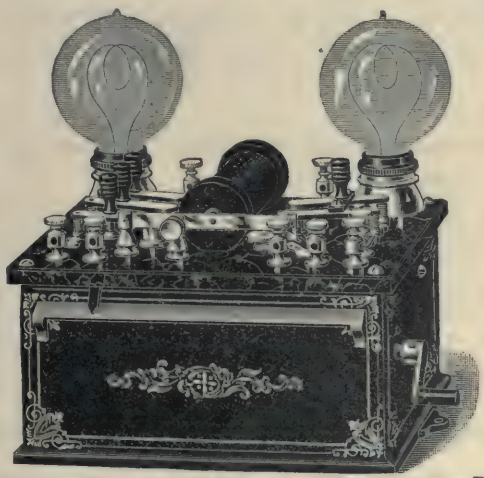

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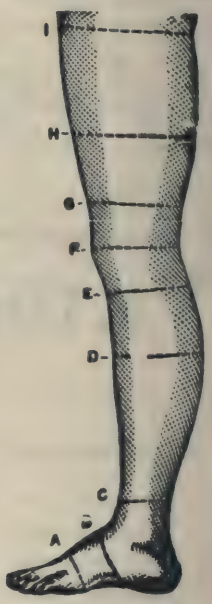

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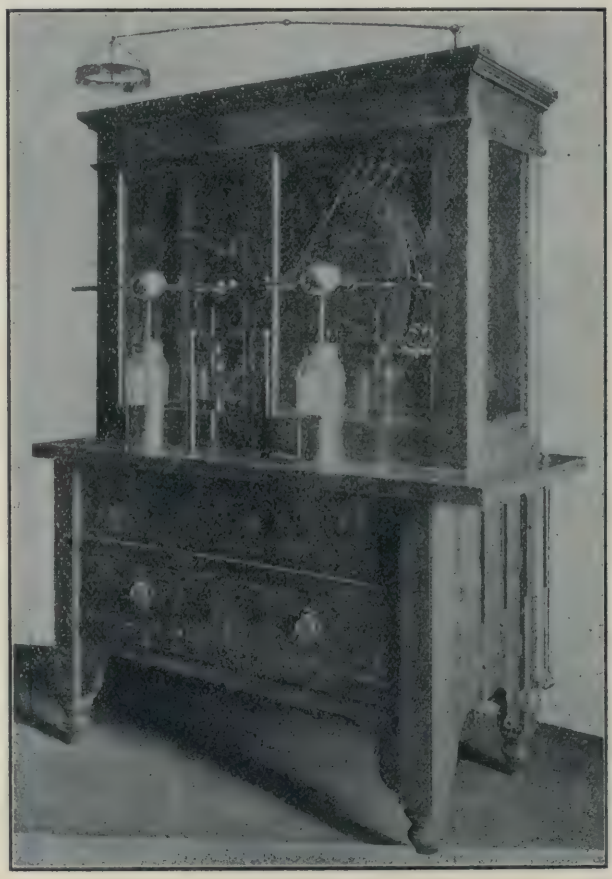

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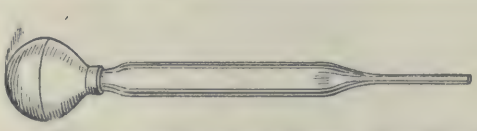

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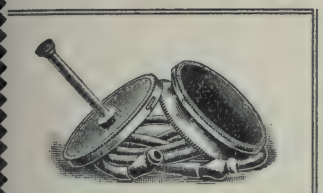

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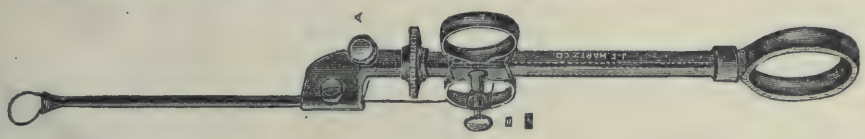

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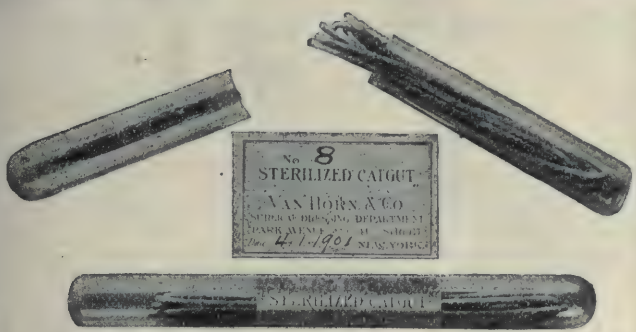

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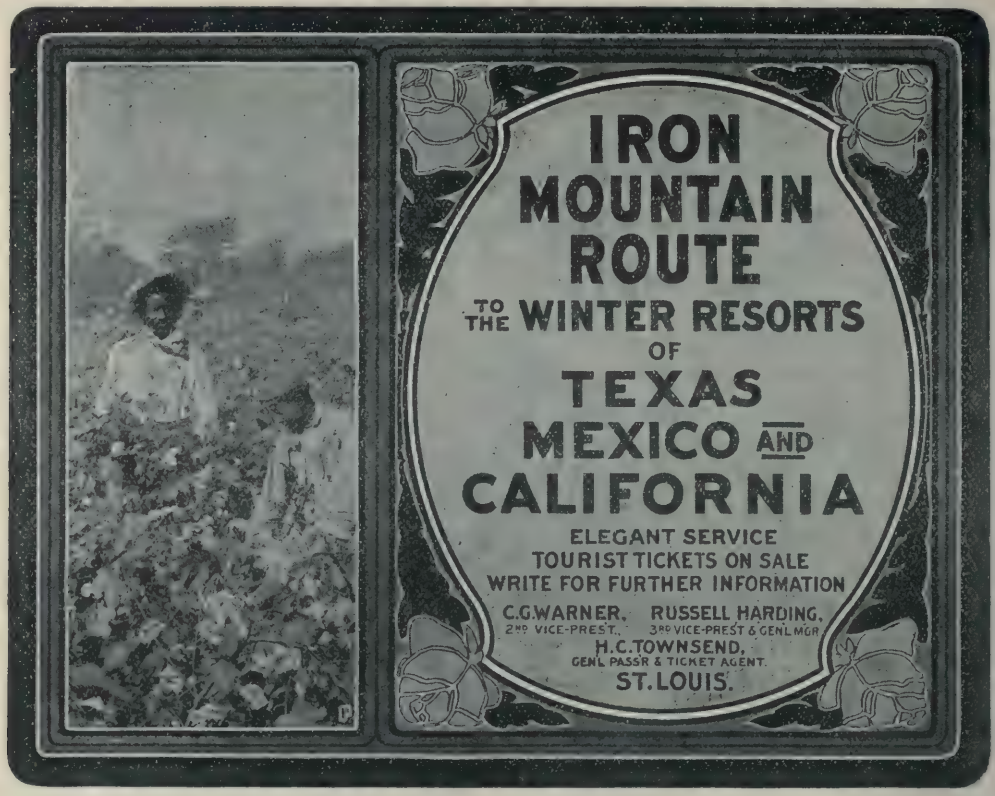

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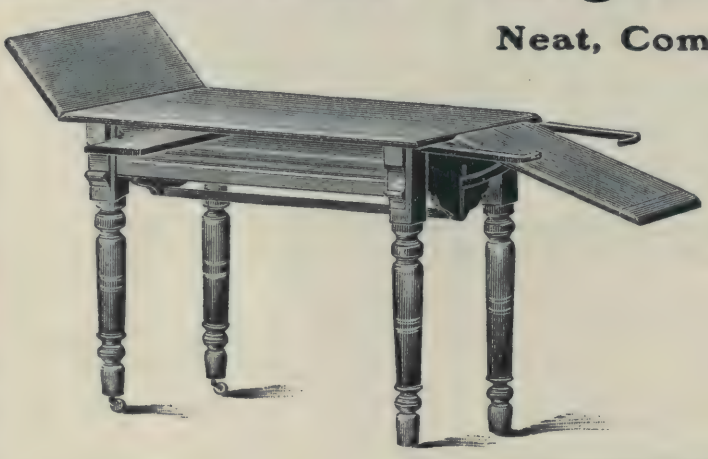

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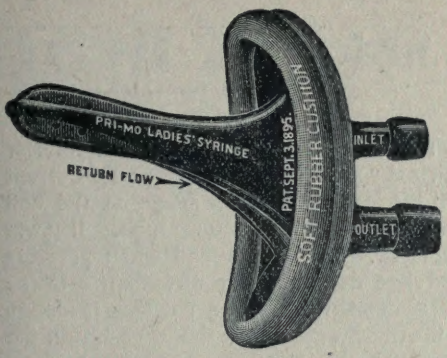

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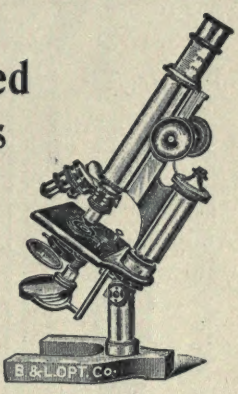

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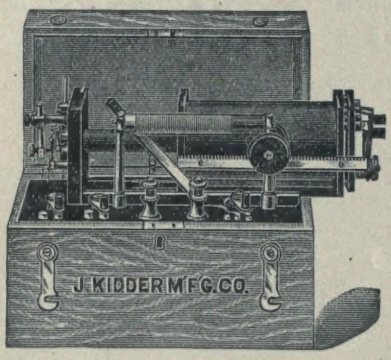

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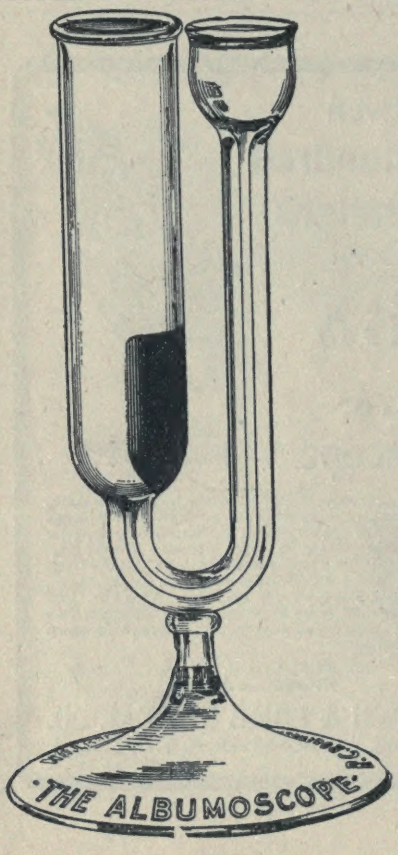

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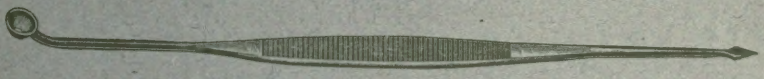

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